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SPECIAL EDUCATION
FOR THE
EXCEPTIONAL

VOLUME II

THE PHYSICALLY HANDICAPPED AND SPECIAL HEALTH PROBLEMS

INSTITUTE OF EDUCATION FOR WOMEN
Dept. of Extension
SERVICE.
CALCUTTA-27

SPECIAL EDUCATION FOR THE EXCEPTIONAL

VOL. I INTRODUCTION AND PROBLEMS

VOL. II THE PHYSICALLY HANDICAPPED AND SPECIAL HEALTH PROBLEMS

VOL. III EMOTIONAL AND MENTAL DEVIATES AND SPECIAL PROBLEMS

EDITED BY

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11 BEACON STREET • BOSTON 8, MASSACHUSETTS

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AND
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DEDICATION

To Professor Philip R. V. Curoe, Chairman, Department of Education and Director of Teacher Education, Hunter College, New York City, — profound scholar, efficient administrator, devoted friend of exceptional children. Without his spiritual encouragement and practical guidance this volume would not have been written.

INSTITUTE OF EDUCATION FOR WOMEN
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NEED FOR SERVICES TO EXCEPTIONAL CHILDREN

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We all appreciate the necessity of having more and having better educational provisions for the children we call exceptional. We call them exceptional either because they have talents or handicaps sufficient in degree to make it important to provide opportunities, treatment, instruction, facilities, and/or programs different at least in part from those afforded to most children.

To meet all of these specialized needs — for the blind, the partially seeing, the crippled, those with special health problems, the deaf, and hard-of-hearing, the speech handicapped, the socially maladjusted, the mentally retarded, and the gifted — there are today in the service of the Nation's schools, not more than twenty-five thousand who are designated as "special teachers." Roughly, this means an average of 180 exceptional children for every "special teacher" in this field in the United States. It means in fact that many, many children who need the services of a teacher with preparation to help them with their special problems get no such help.

Many children with physical handicaps are in hospitals where no program of instruction is provided. Many others are confined to their homes without the opportunity for instruction from which they could profit and which they will need. Some with vision, hearing, and speech problems are in classes which cannot give them the services they require. Many children with mental limitations, or special health problems could become able to care for themselves and even to contribute to home or community well-being if the school program was such as to prepare them to be as useful adults as they were capable.

Failure to serve both the handicapped and gifted results in an unnecessary loss of manpower and womanpower — a loss which this country can ill afford to have.

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*Excerpts from a speech delivered before the Working Conference on the study, "Qualification and Preparation of Teachers of Exceptional Children," at the Department of Health, Education, and Welfare, Room 5022 South, October 25, 1954, used by special permission of Dr. Samuel Miller Brownell, Commissioner of Education, U.S. Department of Health, Education, and Welfare.

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PREFACE

The first volume of *Special Education for the Exceptional* deals with a general treatment of the entire field of special education, presenting problems and methods which are common to all phases of services to the exceptional.

Volume II is concerned with the physically handicapped, — the blind, the deaf, the speech defective, and other definitive areas, — and with the various special health problems, including muscular dystrophy, tuberculosis, Hansen's disease, as well as with the special topics of the multiple handicapped, the homebound and the hospitalized.

The third volume deals with the neurologically impaired, the mentally handicapped, the intellectually gifted, and epilepsy, as well as with special education services in the related fields of the aged, the narcotic, and the alcoholic.

The many authors and contributors of reprints are recognized authorities in their respective fields of endeavor and have prepared accurate, up-to-date materials which present the current methodology and programs of services.

The contributing authors and editors realize that special education is a broad and multifold field, and we do not claim to have presented an exhaustive work nor a highly technical production. These volumes are designed to primarily serve college students, parents, laymen, and new personnel entering our field who desire a comprehensive, authoritative survey of special education for the exceptional.

The editors are beholden to scores of authors, administrators, organizations, periodicals, and agencies, public and private. Over seventy individuals have given generously of their time and talents to make these three volumes possible.

We have been meticulous in our effort to maintain each writer's style for flavor and content. We have made few editorial changes and are fully cognizant of the lack of consistency throughout the volumes with reference to minor items of text book construction. We have consciously sacrificed this consistency for the far greater value to the reader of the individual author's point of view and method of presentation. We console ourselves with Emerson's remarks on consistency:

> A foolish consistency is the hobgoblin of little minds, adored by little statesmen and philosophers and divines. With consistency a great soul has simply nothing to do. He may as well concern himself with his shadow on the wall. Speak what you think now in hard words and tomorrow speak what tomorrow thinks in hard words again, though it contradict everything you said to-day.

The editors have made every effort to give authors of chapters and reprints, periodicals and agencies full credit for their contributions. If our readers discover omissions or errors, we should appreciate being told about them so proper acknowledgments and corrections may be made in any subsequent edition published.

We take this opportunity to express our deepest gratitude to the following authors who generously allowed us to use reprints of their professional writing.

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We are indebted to many school systems, organizations and individuals for an excellent collection of pictures. Because of the lack of space many splendid photographs had to be omitted.

We desire to give special mention to members of the staff of The New York Institute for the Education of the Blind, and to Mr. E. Nelson Hayes, and the staff of Porter Sargent, Publisher, for their painstaking work in the preparation of the manuscript.

It is our fondest hope that these volumes may prove a contribution to our better understanding of exceptional individuals, their handicaps, their potentialities and their future of happiness for themselves and of service to the community. We venture an additional hope that this work may stimulate others to produce more and better literature for our professional field.

MERLE E. FRAMPTON
ELENA D. GALL

CREED FOR EXCEPTIONAL CHILDREN

LEONARD MAYO

We Believe in the American promise of equality of opportunity, regardless of nationality, cultural background, race, or religion.

We Believe that this promise extends to every child within the borders of our country no matter what his gifts, his capacity, or his handicaps.

We Believe that the nation as a whole, every state and county, every city, town, and hamlet, and every citizen has an obligation to help in bringing to fruition in this generation the ideal of a full and useful life for every exceptional child in accordance with his capacity: the child who is handicapped by defects of speech, of sight, or of hearing, the child whose life may be adversely influenced by a crippling disease or condition, the child whose adjustment to society is made difficult by emotional or mental disorders, and the child who is endowed with special gifts of mind and spirit.

We Believe that to this end the home of the exceptional child, the schools, the churches, and the health and social agencies in his community must work together effectively in his behalf.

We Believe that for the most exceptional children their parents and teachers are the master architects essential to the planning and building of their future.

We Believe, therefore, that every appropriate resource of the community must be mobilized, if need be, to aid in maintaining his family life at an adequate social and economic level, and in furnishing guidance and encouragement to his parents.

We Believe that the teachers of exceptional children must possess the personality, develop the understanding, and acquire the knowledge and skill through special preparation that will enable them to inspire and motivate, as well as teach the art of making a living and a life.

We Believe that the cooperative efforts of parents and teachers must be encouraged, sustained, and supplemented: by teacher education institutions with curricula and programs based on the knowledges and skills needed in

---

*This creed, presented to the Conference on the Qualification and Preparation of Teachers of Exceptional Children, October, 1954, by Dr. Leonard Mayo, Director of the Association for the Aid of Crippled Children, New York City, is used by special permission of Dr. Leonard Mayo and the Association for the Aid of Crippled Children, New York City.

the education of exceptional children; by State departments that will develop challenging standards of program operation, and work with teachers in establishing sound certification procedures; by local school systems that will recruit and employ teachers who are qualified by personality and special preparation; by health and welfare agencies that will provide diagnosis and evaluation, medical and psychiatric care, and social service.

We Believe that research designed to increase present knowledge of personality and the learning process, and studies aimed at the improvement of programs of special education are essential to further progress.

We Believe in the sensitive interpretation of the exceptional child and his needs by teachers and others in order that an attitude favorable to his acceptance and development may be engendered and sustained in the community.

Above All, We Believe in the exceptional child himself; in his capacity for development so frequently retarded by the limits of present knowledge; in his right to a full life too often denied him through lack of imagination and ingenuity on the part of his elders; in his passion for freedom and independence that can be his only when those who guide and teach him have learned the lessons of humility, and in whom there resides an effective confluence of the trained mind and the warm heart.

SECTION IV

CHAPTER I

THE BLIND

THE BLIND, BY MERLE E. FRAMPTON, SETH HOARD, ELLEN KERNEY, AND PAUL MITCHELL

MY CHILD IS BLIND, BY LOIS T. HENDERSON

THE PRESCHOOL CHILD WHO IS VISUALLY HANDICAPPED, BY MARTHA TABER

IF HE IS BLIND, BY BERTHOLD LOWENFELD

EDUCATION OF THE UNGRADED BLIND CHILD, BY PAUL C. MITCHELL

THE USE OF THE WORKSHOP TECHNIQUE AS A CONTRIBUTION TO THE EDUCATION OF THE BLIND CHILD, BY GEORGIE LEE ABEL

SOME SPECIAL ASPECTS OF AN ADEQUATE VOCATIONAL TRAINING AND EMPLOYMENT PROGRAM FOR THE BLIND, BY HARRY J. SPAR

CURRENT PROBLEMS IN THE FIELD OF THE BLIND, BY M. ROBERT BARNETT

INTERNATIONAL SERVICES FOR THE BLIND, BY ERIC T. BOULTER

AGENCIES, INSTITUTIONS, BIBLIOGRAPHIES, AND PERIODICALS FOR THE BLIND

THE BLIND

MERLE E. FRAMPTON, SETH HOARD, ELLEN KERNEY, AND PAUL MITCHELL

Definition

In popular usage the term 'blind' is of vague import. It includes both the *totally-blind* and the *partially-blind* or partially-seeing, between whom there is no generally accepted line of demarcation. Strictly speaking, the totally-blind include those having no light perception whatever. But there are many who are able to see light and yet are unable to distinguish between persons and objects. For most purposes this is as great a handicap as being unable to see at all.

"A blind person," according to the instructions given census enumerators in 1910, "is one who is either totally or partially blind in both eyes so as to be unable to read, even with the help of glasses." In 1920 and 1930 the instructions read substantially the same: "Include as blind any person who cannot see well enough to read even with the aid of glasses."

The definition of blindness recommended by the Social Security Board reads: "Visual acuity of 20/200 or less in the better eye with proper correction, or a limitation in the fields of vision such that the widest diameter of the visual field subtends an angular distance no greater than 20 degrees."

In Baldwin's *Dictionary of Philosophy and Psychology*, blindness is defined as a general term

> designating any distinct lack of power to respond to the stimuli which give rise to vision. It may be partial or total and may be due to injuries or deficiencies in any part of the optical mechanism, accessory to the retina, in the retina itself, in the optic nerve, in the cortical or subcortical centers for vision, or in the connections between these.[1]

The White House Conference of 1930, through its Committee on the Visually Handicapped, adopted the following definition: "A blind person is one who cannot use his eyes for education." The Joint Committee of the National Education Association and the American Medical Association on Health Problems in Education, in collaboration with the National Society for the Prevention of Blindness, states in its pamphlet, *Conserving the Sight of School Children*: "Children with 20/200 vision or less, *after correction*, are considered blind and should be educated as finger readers in a school or class for the blind."

Definitions, however, should be formulated in view of the purposes which they are to serve.[2] Dr. Ralph V. Merry distinguished between economic blindness and blindness for educational purposes:

> Economic blindness may not represent the same degree of visual acuity as educational blindness. The former includes those whose vision is too defective to allow them to perform work for which eyesight is essential, while the latter applies to children who cannot use their eyes for educational purposes.[3]

The American Medical Association and other medical groups give the following definitions:[4–6]

1. Absolute blindness: inability to perceive light.
2. Economic blindness: inability to do any kind of work for which sight is essential.
3. Vocational blindness: impairment of vision which makes it impossible for a person to do work which he had formerly done to earn a living.
4. Educational blindness: such loss of sight as makes it difficult, dangerous, or impossible to learn by the methods that are commonly used in schools. For sight-conservation classes the requirement is vision in the better eye of less than 20/70 and better than 20/200. For admission into a school for the blind the vision in the better eye must be 20/200 or less (with correction).

> Central visual acuity of 20/200 or less in the better eye, with correcting glasses; or central visual acuity of more than 20/200 if there is a field defect in which the peripheral field has contracted to such an extent that the widest diameter of visual field subtends an angular distance no greater than 20 degrees.(7)

> Central visual acuity of 20/200 or less in the better eye, with correcting glasses; or central visual acuity of more than 20/200 if there is a field defect in which the peripheral field has contracted to such an extent that the widest diameter of visual field subtends an angular distance no greater than 20 degrees.' A person is said to have visual acuity of 20/200 if, at a distance of twenty feet, he can read only the large type which a person with normal vision can read at a distance of two hundred feet. It may happen that an individual has practically normal central visual acuity, but the field of vision is so restricted that he can see only a very limited area at a time and can make very little practical use of his vision. A person who suffers from either of these kinds of visual handicap is so limited in his choice of occupation that, from the economic point of view, he is considered blind.[8]

The importance of an adequate and accurate functional definition of blindness, and adherence to it, cannot be over-emphasized. This is true in connection with both social work and education work.

State surveys for the enumeration of the blind have employed practically the same definition as that used in the Federal census.[9] In many cases the definition is vaguely worded in the survey schedules and is difficult of application by the field workers.

In considering definitions of blindness it is important to remember that these must be formulated in terms of the purpose which they are expected to serve. Functional definitions are necessary and should include consideration of the educational program required, vocational possibilities, and economic prognosis.

Classification and Causes

Classifications, like definitions, should be arranged with reference to the purpose which they are to serve. The entire blind population may be variously grouped, — according to age, age at onset of blindness, occupation, economic status, education, cause of blindness, degree of vision, etc. All these points of view are essential to a complete picture.

Classifications useful for educational and social service purposes will be illustrated in the appropriate sections. A simple and workable classification for dealing with individuals or small groups is that suggested by French as follows:[12]

Classification of Blindness
(Based on French's classification)

Degree of defect
- A. Total blindness
- B. Shadow vision up to 20/200
- C. Form and motion vision
- D. Conspicuous defective vision up to 20/70
- E. Color blindness

Time of onset
- 1. Born or very early blinded
- 2. Dim vision, imagery retained
- 3. Blinded in early adolescence
- 4. Blinded in maturity
- 5. Blinded in later maturity or old age

Collateral effects
- A. Seriously impaired health
- B. Dulling of other senses
- C. Various mental effects
- D. Pathological nervousness
- E. Any combination of the above

A broad, general grouping, based on the amount of vision remaining, is as follows:

Classification by Amount of Vision Remaining[13]

Group 0. Absolute blindness
Group 1. Light perception (and/or projection) only
Group 2. Motion perception and form perception up to 5/200 (or up to "counts fingers at 3 feet")
Group 3. 5/200 but not 10/200 (or "counts fingers at 3 feet but not 10 feet")
Group 4. 10/200 but not 20/200
Group 5. 20/200
Group 6. Better than 20/200, but having peripheral vision limited to 20° or less in the widest diameter
Group 7. Better than 20/200 up to 20/70
Group 8. Better than 20/70
Group 9. Vision not reported

Group No. 7 in this classification comprises the sight-conservation classes in the public schools. The first six groups will, under normal conditions, be placed in schools or classes for the blind. These pupils may be handicapped by the extremely defective vision that results from high myopia, or from progressive diseases of the retina and choroid which may lead to further severe impairment or even to loss of vision. Such pupils (Group 1-6) are blind by legal definition, but they have some remnants of vision remaining and hence are designated as 'partially-blind' to distinguish them from the 'partially-sighted'.

The partially-sighted are most often classified as to degree of vision. There is great need for a more careful educational classification of this group. Blind and partially-sighted children are too often classed together as one in educational reports. The simple distinction between 'myopes' and other 'lowvisioned' pupils is at least one step in advance.[14] For educational purposes, partially-sighted pupils should be more carefully classified as to degree of vision and causes of blindness.

The outstanding problem in classification, however, has been that of the cause of blindness. Although work for the blind has been carried on for years, no standard scheme of classification for uniform use throughout the country has heretofore been available. To meet this need, a Committee on Statistics of the Blind was formed (1929), sponsored by the American Foundation for the Blind, the National Society for the Prevention of Blindness, with the cooperation of the Russell Sage Foundation.[15] The classification recommended by this committee has been tried out on many thousand cases during many years of experimental work. Two major divisions of this classification are:

1. The etiological factor; i.e., the underlying cause, the disease or accident fundamentally responsible for the basic eye condition. Actually this may be difficult to determine, but the etiological factor is especially important.
2. The topographical factor; i.e., the part of the eye affected. In this grouping each case is classified according to the nature and location of the eye lesion (e.g., corneal ulcers, or detached retina).

Each case is thus classified in two ways. For example, optic atrophy due to syphilis would be classified under syphilis in the etiological section and under optic atrophy in the topographical grouping.

The 1949 status of the causes of blindness, regardless of age, was, according to Potter, as follows:

> Over one-half—54.4 per cent—of all blindness is due to disease. Of all cases of blindness due to disease, 38.6 per cent result from diseases of the eye, and more than 15 per cent result from general diseases which somtimes affect vision. Diseases of the eye include cataracts of all kinds, disorders of the optic nerve and of the conjunctiva. Atrophy is the most common form of optic nerve disorder. Diseases of the optic nerve are usually chronic and chances for cure are always poor. Glaucoma, or hardening of the eyeball and abnormal internal pressure, produces more than five percent of all blindness.
>
> Among general diseases affecting vision, measles, meningitis, scarlet fever, and certain diseases of the head are the most dangerous, accounting for six percent of all blindness. For many reasons it is difficult to determine the extent of blindness due to venereal diseases. Some cases of blindness are the direct result of such infection, frequently congenital, while many other cases are caused by diseases which actually are themselves produced by venereal infection.
>
> Accidents are the source of almost seventeen percent of all cases of blindness. The greatest accidental cause of blindness is explosions; three percent of all blindness is traced to this cause. Nearly two percent of all cases result from the use of firearms. Foreign substances in the eye produce a little more than one percent of blindness and most of these cases are caused by acids or other chemicals. Alcoholic poisoning, tobacco, chronic leads, and other occupational poisonings cause about one percent of all cases.
>
> Cases of blindness resulting from no definite or accurately reported causes amount to about twenty-five percent of the total. Of these, congenital blindness produces almost seven per cent.[16]

In 1951 a group report on the National Work Session (called in April by the American Foundation for the Blind) included an analysis of what should be done to influence the eradication of the causes of blindness.[17] The conditions listed included retrolental fibroplasia, congenital cataracts, congenital glaucoma, prenatal intraocular inflammations, intraocular tumors, hereditary diseases, and amblyopia.

In 1952 a physician, H.A. Pfingst, speaking on retrolental fibroplasia, stated:

> Yesterday gonorrheal ophthalmia was the leading cause of blindness in children. Today diseases of prenatal origin such as congenital cataracts, congenital glaucoma, retinitis pigmentosa and albinism are filling our schools for the blind. Tomorrow it will probably be retrolental fibroplasia.[18]

In 1953 two reports gave statistics. The total number of blind minors as of July 1, 1953 was estimated by K.F. Gruber to be 31,400 (one tenth of the total for all ages).[19] Hurlin reported as follows:

> There can be no doubt that the proportion of older persons in the population is now one of the principal factors determining the number of blind persons. Many diseases that cause blindness—including the two now most frequent causes, cataract and glaucoma—occur chiefly in the later years of life. While increasing longevity has increased the relative importance of eye disease associated with age, medical science has been reducing spectacularly the incidence of blindness from infectious diseases, which probably once accounted in this country—as it still does in some parts of the world—for the greater part of blindness. . . .
>
> Because cataract, glaucoma, and other eye diseases occurring most frequently among older persons probably now account for at least two-thirds of existing blindness, and because the proportion of the population aged 65 or over increased by almost 20 percent from 1940 to 1950 and is continuing to increase, it is not unreasonable to suppose that the prevalence rate of blindness, as well as the number of blind persons, is now increasing.[20]

The number of blind children under seven years of age was possibly 5,500 at the end of 1950, and 6,000 at the end of 1953, according to C.E. Kerby, who in 1954 listed the distribution of blindness by cause as it was at the end of 1943 and at the end of 1950.[21] The 1943 percentages for 834 cases in 11 states were: infectious diseases, 9.7; injuries, 5.3; tumors, 4.8; prenatal influence, 62.6; retrolental fibroplasia, 6.7; other causes, 10.9. The 1950 percentages were for 11 and 16 states, respectively. In the first instance the percentages for 1317 cases were: infectious diseases, 4.3; injuries, 2.4; tumors, 2.4; prenatal influence, 37.4; retrolental fibroplasia, 48.3; other causes, 5.2. In the 2412 cases reported by 16 states the percentages were: infectious diseases, 4.1; injuries, 2.8; tumors, 2.7; prenatal influence, 37.5; retrolental fibroplasia, 46.6; other causes, 6.2.

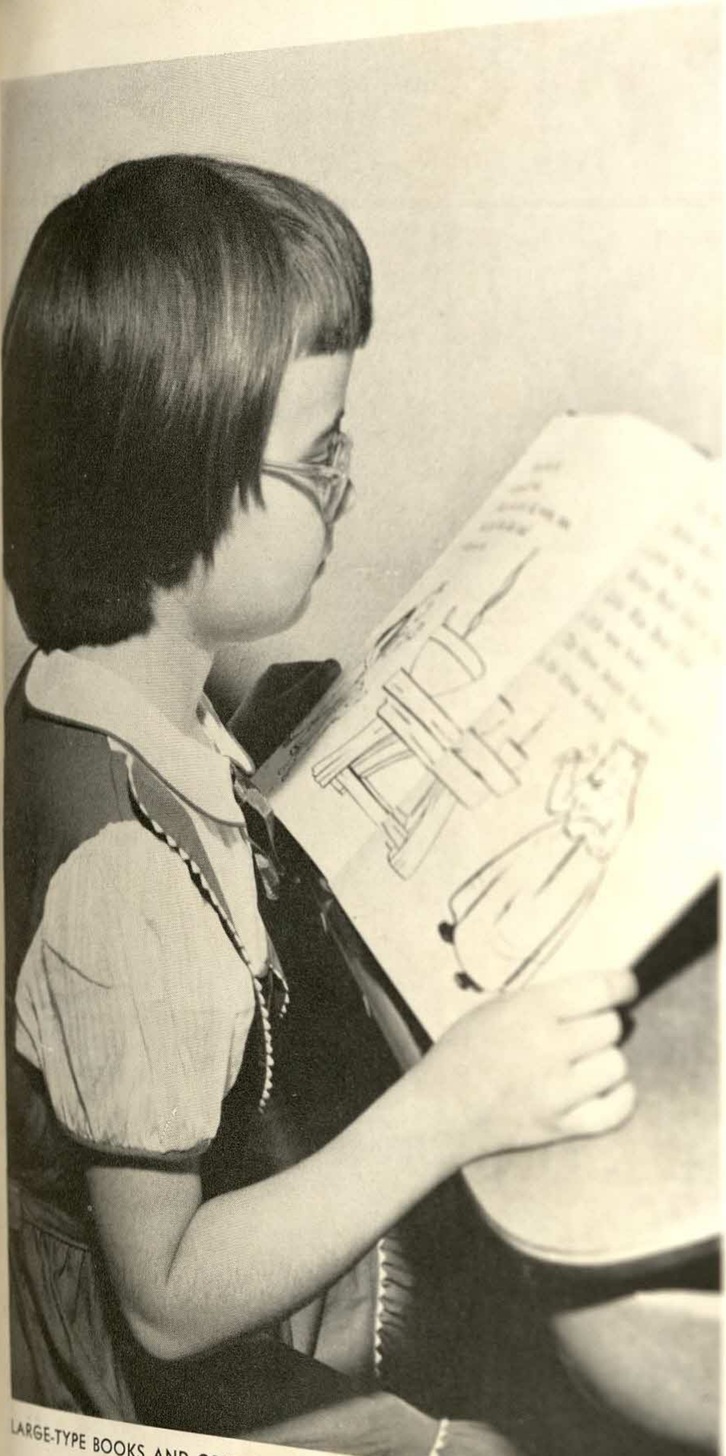
Two additional reasons for blindness were advanced in 1954, inadequate funds for research on diseases causing 27,000 cases of blindness annually,[22] and emotional disturbances.[23]

Apart from all the above possibilitities, it has often been noted that the rise in population since the end of World War II has been attended with a corresponding increase in the number of blind persons.[24–33]

INCIDENCE

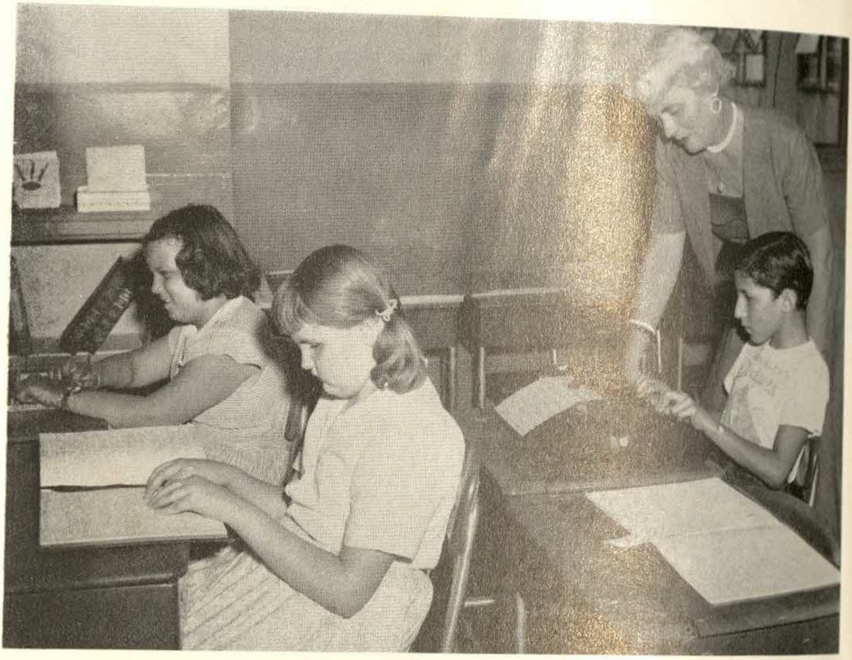
Present provisions for discovery of blindness and for census taking are still inadequate. Sources of statistics of blindness are the Federal census, a few state surveys, and private estimates usually based upon these. Enumeration of the blind is difficult and requires carefully prepared census procedures to ensure accurate returns.

An accurate census of the total number of blind persons in the United States has never been made. In 1940 the United States Census Bureau abandoned its regular decennial attempts to include an enumeration of the blind because

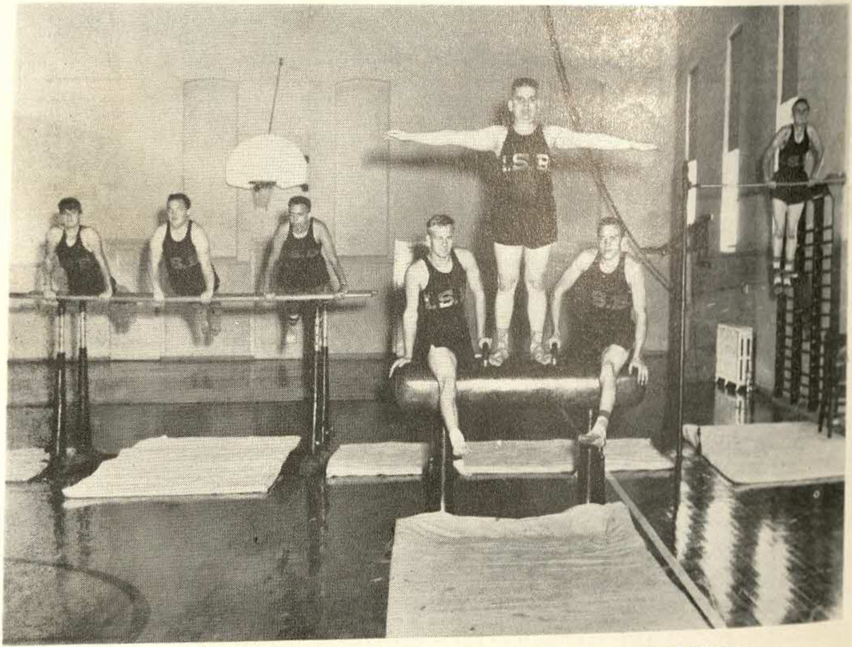


LARGE-TYPE BOOKS AND OPTIMUM LIGHTING HELP PUPIL WITH IMPAIRED VISION

Los Angeles City Schools, Los Angeles, California



READING, TYPING, AND TELLING TIME IN A CLASS FOR THE BLIND
Hunter College, New York City



A CLASS OF BLIND BOYS PERFORMING IN GYMNASIUM
Illinois School for the Blind, Chicago, Ill.

no reliable results were available. The difficulties stemmed from several causes: (1) No uniform and universal definition of blindness had been accepted by the several states. (2) Many unmeasureable factors, such as for example, psychological influences, made exact determination of eye conditions uncertain in many cases. (3) Any legal definition of blindness including a qualifying condition with respect to correction by glasses, complicated the census. Many cases were not able to finance necessary glasses and therefore remained in the blind category. Others were not counted blind, due to lack of testing facilities, who nevertheless would be considered otherwise legally blind. (4) Many families were reluctant to admit members of family were blind, or at least failed to mention it for one reason or another.

The number of blind persons in the United States can be estimated to be between 300,000 and 350,000.[34–37] Using modern methods of compilation and study, Ralph G. Hurlin gives an estimate of 308,000 blind persons in the United States.[38–39]

While the total number of blind persons in the United States is of interest to the field of special education, other factors in the census are also of paramount importance to the educator. How many blind children are there of school age? How many are there in the pre-school group and what changes may be taking place in the number in these two groups? Attempts to record the total number of the handicapped of school age or at school are often attended with difficulty. One reason is the lag in reporting, which is understandable, though regrettable. Another cause lies in the incomplete returns afforded by questionnaires. Thus the figures cited below for blindness will not always match as to year. The resultant impression on the reader may be a feeling of frustration shared by the compiler. The problem is indeed a challenge to improve methods of future census returns.

The number of blind children in American schools during the 1943-1953 decade was reported in October of 1953 by Lowenfeld[40] and listed in terms of two-year intervals:

1943	6067
1945	5682
1947	5725
1949	5767
1951	6093
1953	6538

A clue to the 1952 distribution of blindness in the school population may be gained from Hurlin's statistics indicating 308,000 blind persons in the United States as of July, 1952.[41] This figure demonstrated an increase over the figure of 230,000 in 1940 and 255,000 in 1948.

Meanwhile, the United States Office of Education had estimated that 33,000,000 students would be attending school and college in 1951-1952.[42] Of this number, nearly 25 million would be in elementary schools, just over 6 million in secondary schools, better than 2 million in institutes of higher education, and 260 thousand in other schools.

Further complication arises when blind children of 'preschool age' (but often attending nursery school) are considered. Blindness in this group has recently received serious attention from physicians and professional workers in various English-speaking countries, notably in Canada and Great Britain as well as in the United States. A British writer[43] commented, in January of 1954, on the rising incidence of retrolental fibroplasia in England and on the expectation of 650 such cases a year in the United States.

Miss C. Edith Kerby[44] was able to estimate that at the end of 1950 there were roughly 5,500 preschool blind children in the United States, and that the number might reach 6,000 at the end of 1953. Her survey concerned 2,809 children under 7 years of age; blindness had been caused by retrolental fibroplasia in almost 50% of these cases.

A physician, W.A. Wilson, writing late in 1953 on retrolental fibroplasia in one California county, recorded 34 cases at the hospital and 24 in private practice. He felt that a combined attack by ophthalmologist, obstetrician, and pediatrician would lead to identification of the etiology and origin, and thus to an "obvious solution."

How many of the 45,000 children with visual handicaps now attending public schools might sometime be classified to require the special services for the blind?

There can be no doubt that due to cataract and glaucoma, a large proportion of the blind persons estimated in the national census are older people. By this is meant that this proportion of older persons is greater than among the general population.[45] In fact, not more than 10 per cent of the blind are under twenty years of age,[46] and the group sixty years or older showed two-thirds of the entire increase in the number of blind during the decade 1940-1950. This lends importance to the attention which must be given to the program of adult education for the blind.[47–48]

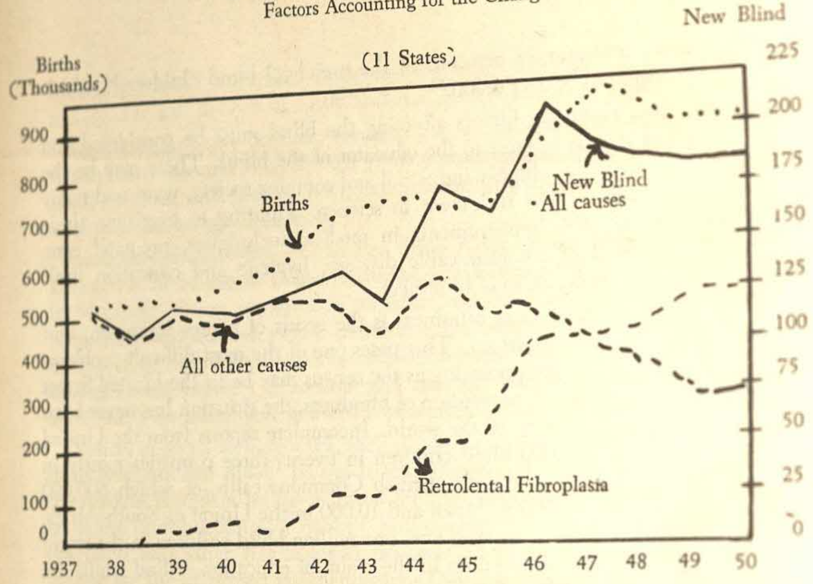
The census with regard to blind children of school age can be fairly accurate when taken from the actual enrollment in schools throughout the country. For example, the total number of children enrolled in 1952-53 in forty-five United States residential schools and other units, including fifteen city school systems in thirty-nine states, the District of Columbia and the Territory of Hawaii, was 5,565. A study of 4,248 ophthalmological reports indicates that 5.4% of this number were partially-seeing, while 2.1% may have had better than 20/70 visual acuity with no peripheral limitation indicated.[49] At the present time, the number of children attending residential schools approaches 6,000, and in the public school classes 1,000.[50–51]

It is interesting to note that there are about 130 blind boys to 100 blind girls, while the proportion in general school population is 103 males to 100 females.

It must be remembered that the census situation is in continuous change. Two examples are at once apparent. First, modern science and medicine together with the American way of life have extended the years of life expectancy to sixty-nine for the male and to seventy-one for the female. The eye, being one of the more delicate physiological organs, is therefore susceptible to changes which now begin to appear in the census. The proportion of blind persons aged 65 or over increased by more than 20% from 1940 to 1950 and continues to increase.

Another change has taken place due to the advances in medical technique whereby more children of premature birth now live. The eye defect, retrolental fibroplasia,[52–53] developing in most of these children is now the cause

TRENDS IN BLINDNESS AMONG PRESCHOOL CHILDREN*
With Comparative Data Showing Trends in
Factors Accounting for the Changes



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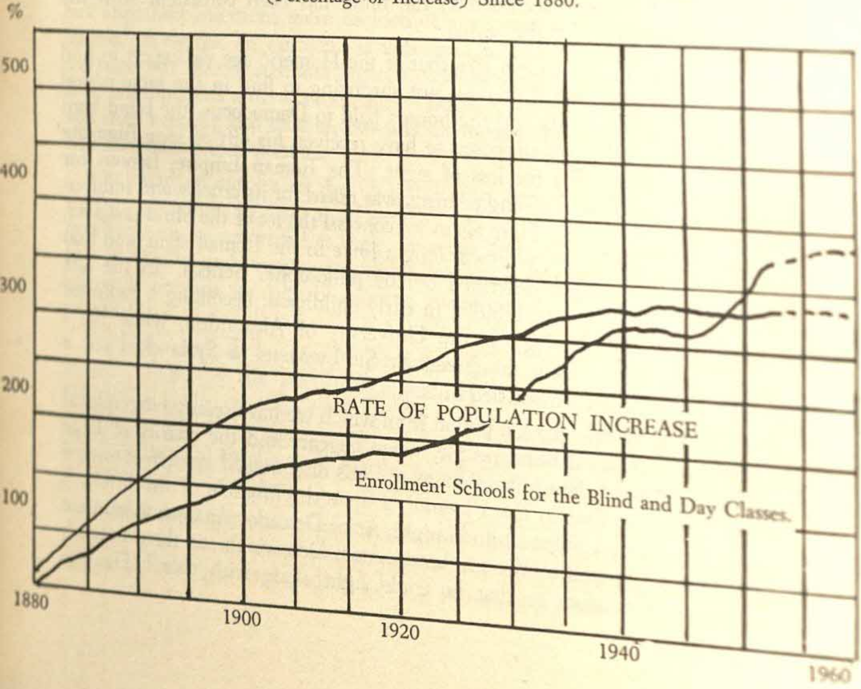
*Publication 113, Blindness in Preschool Children, 1954, C. Edith Kerby, National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York 19, N.Y.

SCHOOL ENROLLMENTS OF BLIND (57) AND POPULATION (58)
(Percentage of Increase) Since 1880.



of blindness in almost 75 per cent of the preschool blind children,[54] which is now estimated to be over 6,000.[55]

Many other changing factors affecting the blind must be considered and are always of special interest to the educator of the blind. These may be the effects of accidents in a highly industrial and complex society, wars, and many causes of blindness now unknown to science. Fighting to overcome these unknowables are the improvements in medical techniques, pre-natal care, sanitation, control of communicable diseases, hygiene and education itself as a force for the prevention of blindness.

It now appears that most blindness is the result of causes unknown, and much of it is of prenatal origin. This poses one of the most difficult problems for medical science. Disappointing as the census may be in the United States for those working for the prevention of blindness, the situation has never been as critical as in other parts of the world. Incomplete reports from the United Nations list over 650,000 blind children in twenty-three countries mostly in North America, Europe and the British Commonwealth, of which 600,000 alone are in India, 12,000 in Japan and 10,000 in the Union of South Africa. It is estimated that there are well over one million blind children in the world today who need special attention in the realm of education. Blind adults are estimated to total 14,000,000 in the world.[56]

HISTORY

Although our evidence from the ancient and medieval world is fragmentary, it is apparent that in all periods gifted and capable blind people have been able to integrate themselves successfully into the society about them. In general, the treatment accorded to the blind has been consistent with the trends and philosophy of the period.

Thus in a primitive society like that of the Homeric age we expect to find cruelty and superstition.[59-60] It is not surprising to find in the same period exposure of blind infants and the honors paid to Demodocus, the blind bard of the Odyssey, who was supposed to have received his gift of song from the gods as a compensation for loss of sight. The Roman Empire, famous for its laws and monuments of engineering, was noted for its cruelty and indifference to human suffering. Here again we contrast the lot of the blind lawgiver, Appius Claudius Caecus, who was long a force in the Roman state, and that of the exploited beggars described by the philosopher Seneca. In the late Empire we find Didymus, blinded in early childhood, becoming a professor of philosophy and theology at the University of Alexandria, while blind beggars gathered up from the streets by St. Lymaeus in Syria eked out a humble existence in their wattled huts.

Even in the Middle Ages, a period from which we have scanty biographical material for individual blind people, when beggary and the charity of large foundations such as the Quinze-Vingts at Paris discouraged any effort toward independence, we find in the *Victorial*, a Spanish chronicle of the fifteenth century, a paragraph about a blind knight, Amor Deseado. Anxious to emulate the deeds of his sighted brothers in battle, Amor Deseado forced them to teach him the art of warfare so that he could fight along with them. He was evidently trained in music, chess, and the other activities of an aristocratic society. He lost his life in battle and was greatly mourned at his death.

In the eighteenth century, contrast the lot of the blind waif, Leseuer, whom Haüy selected to be his first pupil when trying to set up a school for the blind in Paris, and that of Nicholas Saunderson, blind professor of mathematics at Cambridge University.

Such comparisons can be endless. Even today, when more opportunities are open to blind people than ever before in the history of the world, we have blind couples living precariously on relief, while blind business men, scientists, musicians receive ample incomes and occupy posts of honor in our society. One might conclude that the blind man, like his sighted brother, is subject to the caprices of fortune and that generalizations cannot be made about such an individual matter of blindness.

Notices of social welfare work, including care of the blind, have come down to us from ancient times. In the third millenium B.C. the priestly caste of the Middle Kingdom in Egypt cared for the blind and gave them work. In India the Buddhist kings of Ásoka (third century B.C.) founded hospitals for the blind and other handicapped persons. St. Basil established a famous asylum for the distressed and handicapped in Caesaria in Cappadocia in the fourth century A.D. As Christianity spread, wealthy Romans opened their houses to the blind and poor. Charlemagne entertained blind and handicapped people in his palace. In 1179 the Duke of Bavaria established a hospice for the blind; some instruction as well as custodial care was given in this institution. The largest, most famous charitable foundation of this type was established in Paris in 1254. This blind brotherhood was intended to house 300 inmates, as the legend goes, and hence was called the Quinze-Vingts. It was governed by a master and an attendant priest appointed by the king, but important questions were decided at a general meeting where all were allowed to express an opinion. It was open to both men and women, and marriage was encouraged and sighted chldren were allowed to remain with their blind parents until a certain age. The chief income of the Quinze-Vingts was from begging and charity, but was augmented by the singing of Masses and transactions in real estate.

The financial success of the Quinze-Vingts encouraged the founding of similar institutions in Italy and Germany and in other towns in France, but they were not as successful as their prototype and were dissolved. The tradition of charity and beggary established by these foundations of the middle ages still prevails in spite of modern concepts of rehabilitation and independence.

With the rise of the modern States in Europe and because of changes brought about by the Renaissance and the Reformation, civil authorities assumed a greater responsibility for the poor and the handicapped. In the to provide for all indigent classes, and Luis Vives, the Spanish humanist, advocated useful employment for the blind rather than charity as a solution to their economic problem.

Certain developments in the seventeenth and early eighteenth century pointed to the possibility of educating and training the blind. In 1748 Diderot, the great French Encyclopedist, wrote a penetrating study of the habits and psychology of a blind man. In 1755, the education of the deaf was begun by the Abbot of L'Epee near Paris (1712-1789), pointing the way to similar work with other handicapped groups. Harsdorffer in Germany (1651) and Jacob Bernouilli in Switzerland (1676) devised methods by which the blind could write script. The former used wax tablets, the latter paper and pencil with a frame or guide. Block letters had been known since the time of Didymus; Diderot mentions them as a part of the educational equipment of the blind man of Puisaux. A peg board had been invented by Saunderson for setting up problems in arithmetic, algebra, and geometry. This was described at length in Diderot's "Letter on the Blind" (1798).

Valentin Haüy, (1745-1822), a French philanthropist, succeeded in establishing a school for the blind in Paris in 1784. His first pupil was a blind boy whom he found begging on the streets. When he had made some progress in instructing this boy, whose name was Leseuer, he obtained permission to teach a group of blind children from the almshouse. He put his pupils on exhibit and was so successful that he won enough support to found the school, L'Ecole Des Jeunes Aveugles.

Maria Von Paradis, a famous harpsichordist who was blind, gave Haüy valuable suggestions about equipment and methods. She had been in correspondence with Weissemberg a blind man in Mannheim, Germany, whose teacher, Niesen, had instructed him in geography by the use of maps in relief, and in mathematics by Saunderson's peg board. Haüy modified these methods later and invented some of his own. He discovered that Leseuer could read Roman letters if they had been printed heavily enough so that they showed in low relief on the reverse side. This method of teaching the blind to read, — Roman letter in low relief, — was used for nearly one hundred years until displaced by the much more facile braille system.

Inspired by the success of Haüy's school in Paris, philanthropists began to found schools for the blind in Europe and the United States. By 1816 nineteen schools had been founded in Europe and the British Isles. In the third decade of the nineteenth century four schools were established in the United States: Perkins Institute (Boston, but later moved to Watertown); New York Institute for the Education of the Blind (New York City); Overbrook School for the Blind (Philadelphia); and the Ohio School for the Blind, this the first state controlled school. At the present time most states have schools for the blind. If no state school exists, education is provided by public school classes for the blind, or pupils are sent to the neighboring state schools.[61–63]

Besides the founding of schools and workshops for the blind, the most important contribution made in this field in the nineteenth century was the invention of point type, especially braille. Before this invention, books could be read laboriously in raised roman type, but the blind had no means of writing that would be legible to them. The braille system was based upon a complicated military code designed for communication at the front when it was not strategic to show a light. Louis Braille,[64] a patient and ingenious teacher at the Ecole Des Jeunes Aveugles at Paris, realizing that the code could be used advantageously by the blind, simplified it into the form that we have today: six dots in a vertical cell, which admits of enough combinations and possibilities of contraction that can be used as a means of writing all languages, chemical and mathematical formulae, musical notation, — in fact any form of communication.

Considering the obvious advantages of braille, it is astonishing that its use was not adopted immediately. Braille had completed his system in 1834, but it was not until after 1860 that it became popular. It was introduced into the United States in 1860 by the Missouri School for the Blind at St. Louis. In America several systems in raised dots competed with braille. In 1932 Standard English Braille Grade II was made uniform and is the type universally used in English speaking countries.

Many groups were formed in the middle nineteenth century for the purpose of helping the blind. Two are still in existence: the Department of the Blind of the American Bible Society, started in 1835; and The Society for the Relief of the Destitute Blind of the City of New York and its Vicinity, founded in 1869. Roman Catholic, Protestant and Jewish Guilds for the Blind, founded more recently, maintain workshops or conduct schools and homes. The Industrial Home for the Blind in Brooklyn, New York, founded in 1893, now consists of a Nursery School, a home for the blind, and a large workshop. Similar adult workshops are found in many leading U.S. cities. The Massachusetts Association for Promoting the Interests of the Adult Blind, has been in operation since 1903 and the New York Association for the Blind, known as "The Lighthouse" since 1905.

A notable achievement of the twentieth century has been the progress made in educating the pre-school blind child and the parents of these children in an attempt to bring about a better mental and physical adjustment of the blind child. Summer schools for blind babies and their mothers, lecture courses for parents, establishment of nursery schools, placement of blind children in sighted nursery schools are methods that have been tried in order that the parents may accept blindness and make necessary adjustments so that the blind child can develop to the full extent of his abilities without being rejected or over protected.

SOME GENERAL PROBLEMS

In the earlier sections of this chapter, the problems of definitive census and classification were treated. There are other problems in the area of the blind which we can but mention due to lack of space, but they are no less important. The first of these is prevention.

The Prevention Program.[65–67] The prevention-of-blindness program is concerned with reducing the blindness due to diseases, accidents, and other social causes. Essential to prevention of blindness due to specific eye diseases are early discovery of cases and examination and diagnosis by a competent eye physician. More eye clinics should be established to bring the service of specialists to those in need. Examinations of school children should be more thorough and more frequent. In the cities the overloaded public health service may examine the eyes of school children only once every three to five years. Pupils are too often placed in sight-saving classes and then forgotten. Rural areas are neglected. For these the aid of county medical societies should be enlisted.

A second essential is to assist in the restoration of sight, securing medical or surgical treatment for those whom it may benefit. In many cases it would be an economy to use public welfare funds to pay for medical treatment or surgical operations which would prevent blindness or restore sight.

Accidents as a cause of blindness are increasing in importance. New inventions and new hazards in industrial life have brought about this situation. Blindness from industrial accidents is most frequent. The percentage in this field may be decreased by educating the public, employers, and workers in awareness of the frequency of this cause of eye injuries, and by cooperation with agencies concerned with prevention of blindness due to accident — such agencies as, for example, the National Safety Council and the National Society for the Prevention of Blindness.[68]

> In certain occupations the exposure of the workers is very evident. In mining, in military service, in the work of machine tenders and like occupations, the proportions made blind by accidents are doubled or more, over the proportions for the blind as a whole. (69)

Mechanics and carpenters are liable to be blinded by piercing and cutting instruments; painters, by lead poisoning; iron and steel operatives, by exposure to heat and to dust particles; brick and stone masons, by foreign substances in the eye; cooks and laundry workers, by cataract (special form from exposure to heat); teachers, by glaucoma or detachment of the retina; dressmakers and seamstresses, by strained eyes or glaucoma.

Much of the blindness prevalent can be prevented by removing its underlying social cause. The major social causes of blindness may be outlined as follows:

1. Industrial conditions and processes
2. Spread of infectious diseases
3. Unhygienic conditions of living
4. Malnutrition
5. Lack of proper medical services, including
   (a) Medical supervision of schools
   (b) Community nursing
   (c) Regulation of obstetrical services for prevention of ophthalmia neonatorum and retrolental fibroplasia
   (d) Accessibility of medical, surgical and hospital treatment

Those interested in the prevention of blindness should cooperate with public health and safety measures and national drives for the elimination of venereal diseases, tuberculosis, malnutrition, and other causes of blindness.[70]

Psychological Problems. The psychology of blindness, the intelligence of the visually handicapped, and personality problems arising from blindness are the chief topics of discussion in this field.

The opinion among students of the subject is that there is no special psychology of the blind, produced by the loss of sight itself.[71-75]

It is difficult to separate the blindness itself as a causal factor from other conditions often accompanying blindness. Blindness is often attended by poor physique, lowered vitality, and consequent lassitude. Disease, impairment of the nervous system, and general neglect are all too frequent concomitants of blindness. We find among the blind, on the one hand the extreme of an inactive life, sedentary and confined, and on the other over-exertion in an effort to keep pace with the sighted world.

In the field of general psychology, three questions concerning the blind have been uppermost: (1) Is there compensation of the senses? (2) What of the memory of the blind? (3) Is there a special sense of obstacles?[76-81]

Compensation: It is generally conceded that with the blind there is no increased acuity of any of the other senses to compensate for the loss of sight. The loss of sight simply makes it necessary for the blind person to make better use of his remaining senses. Any superior use of his remaining senses is due to education, under the spur of necessity, and is not the free gift of compensation.

Memory: In like manner it has been found that "there is no compensatory superiority in the memory of blind children. . . . In memory, as in sensation, compensation is not a gift but the reward of persistent effort".[82-84]

Facial vision: This term is a misnomer to indicate the apparent ease of the blind in avoiding obstacles. This ability is best explained as the rapid, sometimes subliminal interpretation of combinations of sensations, which serve as cues, warning of possible danger. Obstacles may be sensed by echoes, changes in temperature, odors, currents of air. Combinations of these may cause the contraction of muscles and the accompanying kinesthetic sensations.[85-89]

Intelligence of the Visually Handicapped. The intelligence is neither raised nor lowered because of blindness. But many concomitant factors mentioned in the preceding paragraphs, which are frequently associated with blindness, have led to the popular impression that the blind generally rate low in intelligence.

Apparently, judging from available statistics and prevailing opinion; there is a larger amount of mental limitation or defect among the blind than among the population at large. These statistics and opinions, however, are inadequate, incomplete, and misleading.[90-93]

Blindness and feeble-mindedness are often associated as concomitant effects of some underlying constitutional defect. Blindness due to specific eye diseases and accidental causes is being reduced by prevention efforts, leaving a large proportion of blindness due to systemic and degenerative diseases with which feeble-mindedness is often also associated.

Personality Problems. There is no distinct personality type produced by blindness. Maladjustments are due to the reaction of the individual character to the social situation in which he finds himself. Blind children may be either abused, neglected, or spoiled. There are as many types of reaction to blindness as there are individual characters. Among the blind, as among the sighted, there are persons who are gifted, independent, self-supporting; some are plodders contented with a meager living, others are discontented grumblers; some have keen intellects, others are dull and unteachable; some are strong in body and character, others are weak in both.

Factors other than blindness that enter into the personal-adjustment problem are: (1) age at loss of sight, (2) physical health, (3) mental age, (4) home environment.

There may be no psychology of blindness, but there is a psychology of frustration.[94] In the case of the blind, many normal desires are thwarted and certain traits due to frustration are accentuated—such as feelings of inferiority and phantasies.

The personality problems most prevalent among the visually handicapped children are: (1) phantasies, (2) blindisms, (3) sex problems, (4) speech disorders, (5) behavior problems, (6) general apathy and lack of initiative.[95–99]

Among the more common of the mannerisms, known as 'blindisms', are: (1) rocking or weaving backward and forward, (2) putting fingers or fist into eyes, (3) whirling rapidly round and round, (4) waving fingers before the face, (5) bending the head forward.

Speech disorders are of frequent occurrence among children who are in schools and classes for the blind.[100] One authority estimates the incidence of serious speech defects as high as 48 per cent.

The visual handicap may intensify undesirable behavior problems. Pupils may have fought their way through several years of schooling before the eye difficulty was discovered. Eyestrain and fatigue may lead to exhaustion and neurasthenic conditions.

There is a tendency among myopes to become introvert types. Such children should be drawn out of their recluse attitude. There is danger that the excuse, "I cannot see well," may become an habitual alibi.

Teachers and workers with the blind must understand child psychology and mental hygiene. Undesirable nervous sets, inhibitions, behavior patterns, can be broken down or overcome by teachers who understand the elementary principles of mental hygiene.[101]

EDUCATIONAL PROBLEMS[102–104]

Many blind children begin their schooling later and remain in school up to the time when normal children have left school and entered industrial life. Blind children spend more years in school, on the average, than children with sight. Many blind children are out of school who should be in attendance. Many blind pupils drop out of school before the completion of the high school course. On the whole, the blind have had somewhat less schooling than the general population of all ages.

A general survey of problems to be met in the education of the blind is naturally divided into consideration of: (1) problems in the education of children under school age, (2) education of children from five to twenty-one years of age in elementary school, high school, college and trade schools; (3) education of the adult blind, and (4) education of the partially blind, (5) education of the deaf-blind.

The aims of education for the blind can be summarized as follows:

1. Physical. The development of a strong and healthful physique capable of resisting disease and meeting the unusual strain inherent in the handicap.
2. Academic. A thorough elementary and high school education equivalent to that afforded seeing children.
3. Vocational. Vocational instruction adapted to each pupil's ability with a view to enabling him to become self-supporting.
4. Social. Socialization of each pupil to enable him to become an acceptable and contented member of the community.

Leaders of the blind are awake to the changing of educational objectives in the school system and alive to the necessity of adapting the curriculum to changing conditions and specialized needs.[105–113]

The Preschool. The importance of this problem has long been recognized, but provisions for the education of this group of children are still most inadequate. It was not until the early part of the fourth decade of this century that the profession displayed an interest in pre-school services for the blind. A few residential nurseries were in operation in the early 1900's, notably the Boston Nursery for Blind Babies and ones in New Jersey, New York, and Connecticut. It is estimated that well over 6000 pre-school blind children are to be found in the United States,[114] of which number retrolental fibroplasia has been the cause in almost 50% of the cases. Congenital cataract is the second largest cause of infant blindness. The team of professionals have attacked the problem, and today there are a number of residential day and special services available for the pre-school blind child. The costs are high, but proper servicing during these early years has proved its worth in producing more normal blind children. Numerous parent-teachers conferences have been held, and the conference findings, pamphlets and books have provided a wealth of valuable literature on the subject.[115–130]

General Education. The present period of curriculum reconstruction in many states gives an excellent opportunity for schools and classes for the blind to obtain recognition and school credit for curricula independently built to meet the special need of the blind.

The educational retardation of blind pupils is a serious problem which has not yet received adequate attention. Blind pupils are usually retarded from one to three years or more as compared with seeing pupils of the same age in the public schools.[131–133] For this there are a number of causes, such as late entrances, loss of time due to maladjustment at the onset of blindness, necessity of mastering new tools of learning such as braille reading and writing, faulty teaching techniques, and poor school administration.[134–137]

fifteenth century, German and Flemish towns organized programs to provide relief. In the following century, France and England imposed special taxes

With a majority of this retarded group the physical, social, and emotional problems of adolescence loom so large that it is difficult to do acceptable educational work on a purely academic basis without taking these larger human needs into account. It is a situation which violates the psychological principle of learning readiness. One cannot expect a child of this age to be sincerely interested in formal learning when he is suffering from emotional maladjustment due to blindness and its attendent anxiety, added to the usual emotional and physical changes at this period.

In the case of those who are severely retarded academically for their physiological age, it would seem that the adoption of general methods of slow-learning groups should be considered. Greater emphasis should be placed on practical arts. For these groups, school work is being organized around home mechanics, home management, junior business courses, radio and auto mechanics, etc. Units should be built up showing correlations of practical arts and the tool subjects, with practical arts furnishing the central motivation.[138–140]

Education of the Adult Blind. Our census figures show that approximately 65% of our blind population is over 60 years of age. This is a field which has scarcely been touched. Not more than 50% of these adult blind persons ever attended formal school programs.

Home teaching is the method used for reaching these persons. About 8000 blind persons in the United States are taught by home teachers, and there is an average of one teacher to every 100 persons taught. These teachers give one or two lessons per person per month on the average.[141]

The home teaching of the blind includes two major activities: (1) teaching them to read raised print, or braille, or to use talking books, although even with all the home teaching, only about 30 per cent of the blind can read any type of raised print; (2) teaching them some sort of occupational therapy in the home; (3) keeping the blind person in contact with other services and community activities.

The large majority of pupils are women. The average age is about 50 years. Home economics, handwork, needlework, knitting, and weaving are therefore the chief occupations taught by the home teacher. Home teaching is a form of social case work. It includes investigation, diagnosis, record keeping, and follow-up, as well as also supervision of the medical aspects of the case.[142–148]

The agencies for home teaching in the United States include private associations, state agencies, state boards of education, schools for the blind, and libraries for the blind.

Education of the Partially-Blind.[149–152] The problem of where children who are going blind should be educated is a vital one. Should such children be educated as sighted persons while their sight renders it possible, or should they be educated by methods suitable for the blind as soon as it is known that they are likely to lose their sight within a few years?

There is no doubt about the answer to this question. All these children should be taught in a special class where, under proper individual treatment, they are able to get the education which is the best calculated to fit their special needs in future life.

These children are much more handicapped than the blind and are much less well equipped educationally, psychologically, and socially for the sighted world than are totally blind pupils.

Education of the Deaf-Blind. As to the actual number of deaf-blind today we can only roughly estimate. It is estimated there are about 197 deaf-blind children and 2,800 adults in this country. Education of the deaf-blind in the United States has up to this time been carried on admirably by schools both for the deaf and for the blind, but under restrictions of limited finances and space as well as of availability of trained teachers. It is felt now that these schools will turn their pupils over to such institutions as are specially equipped for the purpose of training the deaf-blind.[153–156]

Dr. Samuel Gridley Howe and Ann Sullivan Macy, pioneers in this field of education, planted seeds for some very excellent work which has been carried on for many years at Perkins Institute for the Blind in Watertown, Massachusetts. Later a department was opened at the New York Institute for the Education of the Blind, the California School for the Blind, and the Iowa School for the Deaf.

In some instances this group is designated as the 'blind-deaf', indicating the opinion that deafness is the major handicap. But common usage favors the term 'deaf-blind', to include the entire class regardless of the ranking or precedence of onset of either affliction.[157–160]

From the educational standpoint, all those individuals who lack sufficient hearing and vision to progress along with individuals of their own ability in classes for the deaf or the blind require the facilities of a school or class for the deaf-blind. A scientific classification based on the definition of deafness and blindness combines to give us four classes which include all degrees of deaf-blindness.

For the purpose of forming a workable classification of the deaf-blind, the deaf may be divided into two groups: (1) those who cannot distinguish any sound, no matter how great the intensity (comparable to the deaf); and (2) those who can understand speech when it is loud, or with the aid of some instrument (comparable to the hard-of-hearing).

The blind are differentiated in like manner: (1) those who cannot distinguish the outline of objects even when brightly illuminated are said to be blind, even though they can tell the difference between light and darkness; and (2) those who can distinguish the outline of objects, even though dimly, or who have serious eye defects, these being classed as having 'poor vision' or 'defective sight'.

Thus the combination of the two handicaps give these four groups: (1) totally deaf and blind; (2) totally deaf with poor vision; (3) hard-of-hearing and totally blind; (4) hard-of-hearing with poor vision.[161–166]

The causes and onset are likewise significant from the educational standpoint. We see a logical division into five groups in respect to the onset of either or both infirmities, which again accounts for the consideration of each case as individual.

The five onset groups are: (1) congenital deaf-blindness; (2) loss of sight and hearing in infancy or childhood; (3) deaf people who subsequently lose their sight; (4) blind people who subsequently lose their hearing; (5) normal adults who are bereft of sight and hearing through accident or illness.

The successes and failures of educators in the field of the deaf-blind prove that there is no golden road to understanding. The deaf-blind is an individual with his own temperament, his own likes and dislikes, independent and different from most other deaf-blind, yet with a normal side that combines to make him a challenge to any teacher. With the totally deaf-blind who have been more or less shut away, the problem is to reduce isolation, restore contacts, and recreate a desire for doing, so that the stagnation of physical activities may not lead to mental stagnation and eventually to mental decay.

The whole world knows the accomplishments of Helen Keller, whose progress and attainments have resulted in universal attention.[167–169] For those who are totally deaf-blind, an individual companionship is necessary for a greater part of the growing educational process. However, it is preferable, for normal growth and development, to increase gradually the number of contacts. The deaf-blind students of today are proving this to be most acceptably true, and this fact alone is giving greater emphasis to the need of more normal classroom work and activities.[170–174]

Personal Social Adjustments

The problem of social adjustment brought about by blindness range from those of everyday social contacts and family relationships to those of economic adjustment, adjustment to the state, and relationships and attitudes toward agencies for the blind.[175–179]

Personal eccentricities and emotional complexes are not confined to the blind, but in this area they are more noticeable and more of a hindrance and handicap. The social adjustment of the blind requires special attention. Sighted people gain social habits through imitation; the blind need direct instruction in everyday social adjustment. Then, too, blindness imposes inhibitions on certain basic instinct, such as the will to power, the desire for independence, the sex instinct, the instinct of leadership and self-assertion. Sublimations must be found for these repressed powers, or abnormal attitudes are likely to result. Help in making family adjustments are often needed by blind children if they are to become welcome members of the household.[180–184]

Recreation Problems

Recreation is one of the best means of correcting the isolation and segregation of the blind. Constant attempts are being made to socialize the blind, especially children. The tendency of these exceptional individuals is toward isolation, either alone in the home or with groups of other blind people. The aim in corrective fields should be to provide social contacts with sighted persons in all kinds of normal recreation, athletics, etc. Music and dramatics are two of the most valuable subjects for meeting the social needs of the blind. Among the physical activities desirable for the blind are wrestling, bowling, horseshoe throwing, swimming, rowing, social dancing, and the recreation routine of summer camps. The blind enjoy playing bridge with braille cards. The recreational programs of the Boy Scouts and the Girl Scouts have been successfully carried on by the blind.[185–189]

The blind person who is homebound, not able to get anywhere except when guided by a member of the family, and who cannot read braille, may be visited by the social worker or home teacher who will give him braille lessons. He may also join a blind or sighted group for recreational activities, get a talking book from the state commission, and learn arts and crafts to carry on at home.[190–192]

In work with the blind many administrative problems arise because of the numerous agencies attempting to serve the field of the blind. These agencies may be classified as public or private, local or national. The mere listing of voluntary agencies working for the blind requires 133 pages of the 1954 *Directory of Activities for the Blind in the United States and Canada.*[193] State and local agencies for the blind now exist in 53 states and territories. There are over 400 agencies, committees, and organized services serving the blind on a state or local area and over 50 purporting to serve this field on a national basis. These many agencies for not more than 350,000 blind persons in the U.S. seem a completely adequate number, if not too many.

Because of the overlapping of effort and duplication of functions, it is impossible to classify clearly these organizations according to types of services rendered. Many of them undertake numerous types of service, such as educational, industrial, and vocational, medical, and preventive, and relief. Problems arise all along the line as to how these services can best be administered, whether by local or national, voluntary or official agencies. The waste of effort and money in poor coordination and duplication of services must be at least one result of such a condition which has existed for so long in this field.

Various Federal and state agencies have from time to time been given charge of different aspects of work with the blind, so that problems of ensuring cooperative service arise. When the state vocational rehabilitation board, the state board of education, the public health department, and the state department of public welfare all have responsibility for various aspects of the work, in addition to the state commission for the blind, the problem is not only one of overlapping of functions but also of securing effectively coordinated services.

Some workers for the blind feel that this division of the responsibility cannot meet the special needs of the blind, for these needs are of such a distinctive nature that they require workers with technical training and long experience in this special field. Any proposed reorganization must not grow out of a program based on a philosophy of mere relief doles, however large. An adequate program must encompass the entire program of personal and social rehabilitation of the blind.

RESEARCH PROBLEMS[194–196]

Problems of research and experimentation are of paramount importance in the education and social adjustment of the blind. Research problems may be grouped in four general, though not exclusive, classifications: (1) the psychology of blindness and related personality problems; (2) problems relating to the general social conditions and social adjustment of the blind; (3) scientific research; (4) educational service studies.

Research in Psychology of Blindness. The application of scientific methods to the study of the psychology of blindness[197–202] is basic to the whole program of the care and education of the blind. Blindness is often accompanied by psychological complications which, to be understood, demand scientific analysis. The effect of blindness upon the other senses, — upon memory, association, imagination and reasoning, — is of immense concern to educators. The psychology of learning, home teaching, adult education, and teaching methods depends upon the findings of such basic studies. In this field also comes the study of behavior problems, 'blindisms', and mental attitudes arising out of this handicap. Personality studies include reaction patterns, phantasies, habits, emotions, and adjustment problems, and lead to recommendations as to corrective education—emotional, physical, social, and vocational.

Social Research. Under the broad classification of social research we may include those problems that have to do with the extent and character of the blind population: (1) the distribution of blindness in rural or urban areas; (2) the causes of blindness; proper classifications of blindness; (3) research in prevention methods; (4) the problems of hereditary blindness; (5) the economic and social status of the blind; (6) rehabilitation vocational employment opportunities.[203]

These problems are of preeminent interest to the social worker, and the social agencies should provide the data and research opportunities. State surveys of the blind conducted in recent years, and analysis of their existing

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data by state commissions and other groups, have begun the attack on these research problems.[204–206]

Scientific Research. At this point it may be well to indicate the distinction between strictly scientific research and educational service studies aimed to help solve the practical day-to-day problems of the teacher and the school.

Strictly, scientific research undertakes to test the fundamental theories and basic assumptions underlying educational processes. It seeks to establish universal principles. Hence, scientific studies of this character commonly involve large numbers of individuals, long intervals of time, and a wide geographic distribution of data, in the effort to eliminate variable factors.[207] In order to measure the actual effects of various factors in the learning process, exact and reliable instruments of measurement are essential. The cooperation of many schools and classes for the blind over a period of years is essential in order that reliable data for scientific work may be obtained. We are still in an infant stage in this area.[208]

Educational Service Studies. By far the larger portion of research projects in education for the blind may be described as service studies. The service study is scientific in method, but it differs from strictly objective scientific research in degree and extent. The service study starts with certain assumptions and does not aim to establish universal laws. The problems which the service study attempts to solve are limited to a particular school, a particular teacher, or a particular classroom. The investigation is limited to the collection of data regarding a particular problem. The procedure is more systematic than ordinary thinking, but less systematic and exact than strictly scientific research.

The service study, for example, may be concerned with whether a certain textbook is too difficult for a particular class, or it may determine the difficulty of assignments or vocabulary; it may select motivating devices, or adapt materials to individual differences. The service study may also be far more extensive; as, for example, when it undertakes the determination of objectives for an entire course of study, applications of standard educational tests, development of project units for special classes, study of pupil groupings, or the construction of curricula which will be adapted to a given community and to the special needs of a certain group of pupils.[209–212]

The many kinds of research conducted in this field may be summarized under the following headings: (1) mental testing; (2) educational achievement testing; (3) psychology of the blind; (4) methods of teaching; (5) curriculum studies; (6) vocational guidance; (7) problems of the partially-sighted; (8) physio-therapy; (9) speech correction; (10) technological devices.[213–215]

Guidance Problems[216–219]

Guidance problems include educational and social adjustments as well as vocational choices. Educational guidance involves not only counseling in the choice of subjects and courses of study, but also the application of diagnostic and remedial methods to each child's special educational problems. For example, many remedial-reading devices have been developed in recent years which can be applied with profit to retarded braille readers.

Schools and classes for the blind have also a special responsibility for social guidance. Social adjustment is one of the blind child's most serious problems, and yet few schools give it more than incidental, not to say accidental, consideration. An adequate program of guidance will include direct instruction in and social and mental treatment of behavior problems, social relationships, social etiquette, communication techniques and job finding techniques.[220-223]

Placement Problems

A great deal of progress has been made in recent years in extending employment services for the blind.[224]

Problems in the development of this work are the limited vocational opportunities open to the blind, the uncertainty as to vocational trends, and the lag between the training of the blind in school and the work of the placement agencies.[225-228]

The chief problem of school training is that of occupational change and the inflexibility of training programs. The schools can give prevocational experience in a few broad fields—such as professional, commercial, manual, musical, etc.—and training in the basic skills common to the area chosen by the student for specialization. Specialized training of the individual on the job is the task of the rehabilitation agency.

As to guidance courses, units in educational guidance, pre-vocational courses, and orientation are needed especially in the elementary, junior and senior high school. Having these courses in the earlier years should supply some motivation to school work and thus help overcome characteristic indifference and apathy.[229]

Today several new factors enter the picture:

1. The problems of occupational changes and of uncertainty as to occupational trends. What is the significance of such changes as they affect the blind?
2. The problem of specialization. What are the effects of specialization upon employment opportunities for the blind?
3. Problems of occupational analysis. What are the possible uses of vocational analysis for the development of occupations for the blind?
4. Problems of counseling. What are the chief factors to be considered in counseling the blind?
5. Problems of vocational training. What methods of vocational training are most suitable, and which of these should be carried on by the schools? By the agencies?

The problem of the employment, placement, and vocational guidance of the blind is a complex and difficult one.[230-234]

The age factor also complicates the employment problem. Practically all the blind are over the employable age of fifteen years, but two-thirds are over sixty years of age.

The largest percentage of blind workers are concentrated in four fields, — manufacturing, trade, professions, agriculture, — with smaller percentages in domestic, clerical, and teaching service.

The growth in personal or social contact jobs bears a direct relation to the education the blind should receive in social adjustment and social relationships. Personal contact jobs are difficult ones in which to place the physically handicapped because the public does not react favorably to deformity in limbs or to diseased eyes. While this presents a problem, it is an obstacle which has been overcome in many instances, as witness the growing number of retail dealers, agents, canvassers, insurance agents, teachers, and lawyers among the blind. To overcome these social prejudices, courses in psychology and sociology, presented in a practical and popular fashion, should be given larger place in our schools and classes.[235-237]

There is need, too, for further study of trends in those occupations which are regarded as most suitable for the blind. Can occupations to which the blind are particularly adapted be safeguarded by special legal provisions, or extended by some type of cooperative organization? The decline in piano tuning, for example, may be due to a fundamental falling off in demand, though the National Piano Merchants' Association contends that this country can absorb thirty million more pianos. Broom making and newsstand keeping could be ensured to the blind by government edict. Weaving, dictaphone, radio mechanics, and poultry raising are examples of occupations which might be extended by means of some form of cooperative organization.[238-240]

These present the difficulties and problems faced by the blind in preparing for, entering upon, and succeeding in professional writing, osteopathy, insurance underwriting, and stand concessions.[241-242] Another approach, designed to open new lines of work for the blind, reveals the jobs which are theoretically suitable for them.[243-249]

Schools and classes for the blind should include in their training: (1) vocational counseling; (2) classes in vocational guidance; (3) classes in economic citizenship, to include special study of the social and vocational problems of the blind as a group; (4) prevocational experience in a few broad fields, such as professional, commercial, manual, musical, and training in the basic skills common to the general area chosen by the student for specialization; (5) adeuate courses and equipment for training in all occupations open to the blind; (6) creation through laboratory experiments of new vocational possibilities.[250]

The placement agencies should cooperate with the schools in securing tryout periods of a few weeks or months in which the student could get actual experience on the job. Preferably this should take place before the close of the school period. In order to ensure the success of these apprenticeships, the schools may have to assume responsibility for their supervision. Final specialized training of the individual on the job is the duty of the rehabilitation agency. In training for specialized jobs the schools will go as far as definite information from the agencies warrants.[251-253]

THE BLINDED WAR VETERAN

Much has been written concerning the individual blinded because of injuries received as a result of enemy action in times of war. Early in the development of what we know in history as the modern period, personnel disabled as the result of wars were usually found to be complete losses to the political and economic power of nations. However, in ancient Rome and medieval France, attention was given to the veteran at least in the form of pension allotments. In the history of our own nation, pensions for veterans of all types of disabilities have been granted to our injured soldiers and sailors and other government personnel engaged in all our war efforts. Public sentiment has grown tremendously during the past half century for the disabled civilian and has been in a large part responsible for the movement of increased benefits to the disabled veteran, particularly the blind.

Programs for the blinded veterans following the first World War were patterned reasonably well for the needs of the blinded veteran.[254–256] As the rehabilitation procedures between World War I and World War II developed, the concept of rehabilitating the blinded veterans for productive and social usefulness grew apace. By 1930, with the establishment of the Veterans Administration and with the enactment by Congress of Public Law No. 494 in 1946, the modern rehabilitation of blinded war veterans as we now know it came into being.[257]

The numbers of blinded veterans in the army, navy, coast guard, air corps and other branches of the military services are most difficult to secure with any high degree of accuracy. The Veterans Administration maintains a record of the total number of blinded veterans receiving pensions. It is perhaps important to indicate that these estimates show that approximately 65 per cent of the group of all blinded were blinded as a result of enemy action, approximately 20 per cent by accident, and the balance by disease.

The fact that blindness came with such suddenness upon men who were in good health and with all their faculties was not only a physical shock, but a tremendous psychological shock as well. The tremendous impact upon the lives of young men of the handicap of blindness affected their status not only as soldiers but also in relationship with their homes and their communities, not for a short time, but for the remainder of their lives. The reactions of the newly blinded, as a result of war injuries, range from complete depression with suicidal tendencies, to casual acceptance and oftentimes with definite hope of some miracle of restoration of sight.

Fortunately, society came to the aid of the newly blinded veteran. The Army with its program at Valley Forge General Hospital, Phoenixville, Penn.,[258] Dibble General Hospital, Menlo Park, Calif., and Avon Old Farms Convalescent Hospital, Conn., brought modern rehabilitation and adjustment programs into reality. The Navy likewise developed a program for the navy blind at the Philadelphia Navy Hospital and the New York Institute for the Education of the Blind.

Following the close of World War II, the Veterans Administration continued the service program of rehabilitation and readjustment established by the various branches of the service. Throughout all of these programs emphasis was placed upon the mental and physical adjustments of the newly blinded, with an attempt to direct the newly blinded veteran through vocational guidance and training to reestablishing himself to productive citizenry.

Extensive programs dealing with educational services including the teaching of braille and typewriting, orientation courses, eating techniques, instruction in travel, occupational therapy, pre-vocational and vocational training, and apprenticeship and placement training on the job, were all parts of the expanding service program to the blinded veteran.[259–260]

The Veterans Administration in later years established a blind Rehabilitation Center at Hines, Illinois,[261] and continues its rehabilitation program for the veterans of World War II and the Korean veterans at this center in cooperation with state rehabilitation centers and agencies for the blind throughout the United States. A private organization known as the Blinded Veterans Association was organized in March, 1945, and has grown rapidly since the close of World War II, developing regional groups through the United States. This organization represents the majority of blinded veterans throughout the United States, serving as an excellent private agency to stimulate interest in the blinded veteran, continue valuable service programs to the blinded veteran, and to initiate new services where necessary. The various veterans organizations have likewise continued their interest through their departments of rehabilitation in the problem of the blinded veteran.

It seems apparent at the present writing that there are adequate organizations to take care of the war blinded, and though the problems of social and economic adjustment are difficult, they can, with patience and determination, be overcome, and there is no reason why the blinded veteran should not in due time be properly reoriented in his community and find himself socially, psychologically and vocationally adjusted.

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Enrollments in Schools and Classes for the Blind

Year Ending June 30	Pupils Registered				Schools Registering			
	Total	Residential	Day	Adults	Total	Residential	Day	Adults
1954	6,591	5,333	1,215	43	91	52	37	2
1955	7,054	5,574	1,447	33	98	52	45	1

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MY CHILD IS BLIND

LOIS T. HENDERSON

Several Saturdays ago my son David, who is now twelve years old and congenitally blind, came noisily into the house after an absence of several hours.

"I'm hungry," he yelled, oblivious of the mud he was tracking across the kitchen floor.

I fixed his lunch for him and then sat and talked to him while he ate.

"Where have you been?" I asked. We had just recently moved to a new neighborhood, and it was rather unusual to have him gone for so long. But now that we lived next door to a boy, also named David, who seemed to ignore our David's blindness and evidently felt it hindered their friendship not at all, things were different.

"Well," Dave spoke around huge mouthfuls of sandwich. "We went up to the store for Louise first, and then we had an ice cream cone, and then we went down to the football field —"

"Down to Ewing's Field?" I interrupted. Ewing's Field was down across the tracks, probably ten or twelve blocks away.

"Sure," he said. "And we watched 'em play football for awhile, and then we played for awhile and —"

Again I interrupted. "*You* played touch football?" I said, and I'm sure there was incredulity in my voice.

"Well, I'm not very good at it," he admitted frankly. "But the kids held my hand and ran with me. And then when we got tired we went to Michael's and looked at stuff and then went and got a coke and bought some chemicals and came home."

He drank his milk with the air of a desert traveler who has just reached an oasis.

I watched him and made some inane remark about the size of his bites, but there was something in my heart very like a singing. What an account for a little blind boy to give — a child I had once thought would be limited and lonely and deprived all his life. But now I knew better. Now I knew what a richness, what a wealth of incident his life could hold.

I had to learn all this the hard way, by trial and error, by fumbling toward a goal I didn't even understand, by watching David and learning from him that a child can live a normal, happy life even though he does not see.

I can rememeber vividly the problems that faced us when he was a baby, the almost unsurmountable problems, it seemed then, and I can remember how the problems slowly dissolved over the years. Always, there will be heartache, I suppose, where David is concerned, but over and above the heartache is the pride in his accomplishments, the great sense of achievement in observing how far he has come.

The education of a child begins, probably, with the moment of his birth, and this is particularly true with a child who is handicapped in any way. But first, the parents of handicapped children must educate themselves, must make their own adjustment to life, must learn to accept their child wisely and well.

There was a time—only once—when I was tempted to hide David from curious eyes, when I said he was sleeping rather than submit to the curious and pitying question, "Why doesn't he open his eyes?" There was the later and more frequent temptation when he was older to "show him off", to display him as something a little special.

The first temptation was overcome with the help of a wise and compassionate husband and with the assistance of a rather fierce pride that would not let me make this dreadful mistake. The second temptation has not been so easy to overcome, but we have tried and are trying to treat David just as any child should be treated — without undue credit for the things he does.

After the parents are adjusted, and this is not an easy thing that takes place in a few minutes or hours as the result of advice from anyone else but something that requires much time and sometimes much rebellion from certain parents, then they can begin to educate their child, to teach him all the things that must be learned.

With a blind child, the situation is a little different from any other child. Educators believe that at least 87% of all that a child learns, he learns from visual stimuli. And so the large problem with the blind baby is how to make up for this great percentage of the learning process. If the baby has his hearing and his other senses, the parents soon learn that they must make use of these other senses to teach their child.

A blind child is not born with superior hearing or an extra sensitive sense of touch, but he learns to develop these senses with the help of those about him. It was obvious to us from the first that David had good hearing, a fact for which we were very grateful. And so we began to point out noises to him, even when he was too young to fully comprehend. We told him that water was running when he heard the rushing sound from the faucets. We told him the barking noise he heard was a dog, we pointed out the sounds of trains, cars, trucks and airplanes. I'm sure he learned to distinguish our voices at a very early age, and he was not two years old yet when he had learned the difference between the sound of Al's footsteps and mine.

Sometimes, his hearing has seemed almost uncanny. I remember when he was about five, I was baking cookies one day and he sat in the kitchen talking to me.

Suddenly he spoke up. "Mummy," he said. "You just dropped a cookie off the cookie sheet into an aluminum glass."

I was astonished, as it was exactly what had happened. "How did you know?" I said.

"I heard it," he answered. I had been so concerned with seeing the cookie flop into the empty tumbler that I had been completely unaware of any sound that it made. But it had been obvious to David — a sound pattern as recognizable to him as the sight of the falling cookie had been to me.

He uses this sense of hearing to tell him many, many things. He was only five when he was able to distinguish the sound of our automobile from any other; he learned very early to tell from sound alone whether he was in a big room or a little room, in an open space of lawn or close to the house.

I think one of the things we did to help David develop his hearing acuity was with music. We sang to him, played records for him and then we made up a little game. We would hum the first few measures of a song to him and let him guess the title. He was only three years old when he could accurately guess the title of more than sixty songs when he heard only the first few notes. We did it to amuse him, but it proved excellent training in listening attentively.

The second sense which we tried to develop in David was the sense of touch. I understand that many blind babies explore new objects eagerly with their hands, but Dave was one of the ones who draw back from strange tactile impressions. Wooly dogs frightened him, moist food disgusted him, strange textures annoyed him. Many times we had to almost force him to touch new things in order to acquaint him with various objects. But gradually, he learned how to "look at" things with curious, exploring fingers. Now it is difficult to keep his hands off many things, and we must watch him in strange stores, for example, lest he touch food or a precariously balanced pile of cans or something dangerous like a meat slicer.

Unfortunately, David is not clever with his hands as some blind children are, and yet he is extremely good at reading and writing Braille — both skills requiring finger dexterity and sensitivity of touch. I can only conclude that he loves to read and write because it opens up new worlds to him, while chair caning or wood working which also require finger dexterity are a little boring to him and so he exerts no effort.

I think I was unaware, when David was tiny, how very important the senses of smell and taste are to a blind child. I can't recall that I ever made any effort to develop these in him, and yet I find that he himself has learned to use these senses accurately and well. They are very important in distinguishing places for David and often help him determine where he is. I wish now I had done more to acquaint him with the odors and tastes of the world when he was very young — I think I know now how important such training would be.

We had many problems with David which many parents of blind children do not have. For one thing, he did not talk until he was two and a half years old. He didn't say one single word, although he used all the vowel and consonant sounds in his "jabbering", and I made every effort to get him to talk. I carefully named every object I put in his hands, I begged him constantly to say "Mummy" or "Daddy" or "cookie". He ignored my requests with blandness and continued to be silent. Well, not silent exactly, as he made a great deal of noise but none of it constructive.

He had a violent temper which made itself known by his biting his wrist and bellowing with rage. I felt that his temper came from the fact that he was frustrated, but I could not think his frustration resulted from his blindness, since he would be unaware of sight. However, since he was blind and would not talk, the combination made it impossible for him to point out or express his wants to me, and in his unhappiness he bit his wrist and screamed.

But one day and without warning, David said a word. We gave him a piece of apple and my mother coaxed him to say "apple". I had done the same thing a hundred times, but this time he cast aside his reticence and tried.

"Ahpple," he said smugly, and great was the sound of our rejoicing thereof.

As soon as he found he could say one word, he ventured into others, and before three months were up, he was talking clearly and fluently, and his wrist biting disappeared forever. He never had difficulty with the pronunciation of words and in a remarkably short time he had acquired an amazing vocabulary. As a matter of fact, he has rarely stopped talking since that day, except to sleep.

Another difficulty we had with David was his slowness in walking. I have seen blind babies who venture forth alone by the time they are fifteen months old and fortunate indeed are the parents of such children. David had no desire to stand, no urge to move around, but was content to sit and play. We were advised to start forcing Dave to stand since his slowness was obviously lack of desire and not lack of ability. We took turns stiffening his knees with our hands while the other one held him under his arms. At first, he actually resisted, but when we expressed over and over our great delight at his standing, he finally consented and began to stiffen his legs of his own accord.

He did not actually stand well until he was almost eighteen months old, and it was another month or two before he began moving at all on his feet and then it was only a sidewise shuffle around his play pen. When we tried to get him to walk across the room, we held his hands, walked behind him and pushed forward one foot at a time to give him the sensation of walking. We were careful, always, not to frighten him, not to take away his support. Perhaps we were too careful with him, perhaps it only added to his slowness, but no two children in this world can be treated alike nor do they react in the same way to a situation. Some children might have advanced quicker with different treatment, but we felt that David was so fearful that only constant reassurance that no harm would befall him could give him any sense of security.

He did not walk alone until he was three years old, and there were many months of worry and unhappiness over his seeming slowness. Looking back on it now, I wish I could have been more relaxed, could have realized that in time things would level out and his early slowness would be unimportant. But that is a difficult sort of knowledge for any parent to possess.

Since David seemed determined to present us with almost every problem known to blind children, he also gave us difficulty with his eating. In the first place, he would not chew properly. As a result of this, he was given chopped baby foods much longer than he should have had them. I took his little chin in my fingers and moved it up and down to simulate chewing. I chewed loudly in his ear, I let him put his hands on my chin and mouth when I chewed, I did everything I could to make him accept regular food. He would eat mashed potatoes, crisp bacon, cookies, apples and very finely cut chicken. But other than that, he demanded and got, I regret to say, the chopped food until he was three and a half.

And then one day, due to a death in the family, things were changed. David's Aunt Lourene took care of him for several days and when I came home again, David was eating regular food.

"How did you do it?" I asked, watching with awe as he chewed up meat loaf and carrots.

Lourene looked a little embarrassed. "I got tough," she admitted.

Then she went on to tell how she had asked David what he wanted for dinner and he outlined an elaborate menu. She fixed it for him and when she started to help him eat it, he began to cry and asked for his familiar chopped food.

Lourene got up from the table and got a ping pong paddle which she brought to David.

"See this?" she said, handing it to him.

He touched it and nodded.

She laid the paddle with a bang on the table. "All right," she said, "Aunt Lourene is going to spank you good if you don't sit up here and eat this nice dinner."

He sat up with alacrity and he ate the food she had prepared and found, to his amazement, that it was good. It was the first time that a very important fact was pointed out to me — that sometimes someone else could do for my child what I could not do. I'm glad I learned it early in David's life.

Due to David's dislike for putting his fingers into wet food, he never made any effort to feed himself with his hands. Most blind babies, I have found, do an amazing job of feeding themselves long before they can adequately handle a spoon because they use their fingers. David refused to do this, and so learning the process of feeding himself was a long and laborious one. We started to teach him when he was two and a half, and we began by holding his hand and guiding the spoon into the dish and then into his mouth. It took a long time for him to learn the relationship between spoon and dish and mouth, but eventually he mastered it.

Of course, he held the spoon upside down many times and of course, he carried it to his mouth empty many times, but he kept trying until he attained success. Even now, however, if the conversation is too absorbing, he sometimes takes a very long time to empty his plate, but on the whole, his manners are adequate and he does a pretty fair job of eating.

I think probably the most important thing to remember with a blind baby — aside from the task of helping him master the purely physical tasks of walking, talking, feeding himself, dressing himself, etc. — is that one dare not ever *assume* that the blind child knows even an obvious fact. This is a rule I have tried very hard to follow all through David's life, and I think it is a good one. With a sighted child, one never points out that a house usually has a pointed roof or that trucks often have double wheels in the back or that flowers grow from the ground. The sighted child observes all this and unconsciously absorbs knowledge day by day. But the blind child is completely oblivious to many, many things and unless his parents take the time to point out even the most familiar things, the child who does not see will be very limited in his conceptions.

We showed David a doll house so that he might know a little of how the outside of our house was made, we gave him toy cars and trucks that were accurate models to acquaint him with the way they were made. When we got a new car, we let him touch the bumper, the wheels, the fenders, the top, the doors, but I doubt that he would have had a truly accurate picture of the car if we had not pointed out the same features in a toy car small enough for him to "see" the whole thing at once.

From the time he was tiny, we showed him flowers, grass, sand, brick walks, snow, gravel, leaves, bark on trees, dirt, puddles and mud. His little hands were often grubby, but it was only in this way that he could learn anything about the world in which he lived.

We took advantage of the great kindness and compassion of people to let him explore other things not found in our house or yard — the token boxes and leather seats in buses, the smooth glass meat counters in stores, the high stools in drugstores, the bins of nails in hardware stores, the presses in a newspaper office. We went one day to the Greater Pittsburgh Airport, and David stood and listened to the sound of the motors, the roar of the propellors.

"Gee," he said and there was wistfulness in his voice, "gee, I wish I could *see* one plane. Just one plane."

I saw a pilot going by and I caught at his sleeve. "Do you suppose," I said hurriedly before my courage ebbed away, "my little boy — he doesnt' see at all — could go out to one of the planes and just touch the wheels and maybe the wings — just to get some idea of the size of a plane."

The pilot looked down at David, and there was warmth and kindness on his young face. He took Dave's hand.

"Come on, son," he said, "we'll go out and see a plane."

Dave's face became radiant, and we went across the field to a huge four motored plane. They lifted Dave up so he could touch as much of the plane body as he could reach, and then he was led into the plane. The pilot showed him the luggage racks, the odd ventilators, the round windows. He put Dave into one of the seats and strapped him in just as though he were a real passenger. And then, with David almost drunk with delight, they went into the cockpit. There, the pilot showed David the instrument panel and let him touch all the levers and buttons. He let Dave talk on the intercom phone.

The pilot noticed that Dave's hands were shaking as he adjusted the head phone.

"Are you nervous?" the pilot said.

"No." The small voice was quivering. "No, I'm just so happy."

Few sighted children, I think, could have gained more from this experience than this little boy who could not see the plane as we saw it, but who, due to the kindness of a young pilot, had been allowed to learn something of its power and beauty.

I remember the day when it was very vividly pointed out to me that a blind child can fail to be aware of even the most obvious things unless they are pointed out to him. It was another day when I was baking, and Dave was sitting with me in anticipation of a bowl to lick.

I was reading the recipe aloud. "The whites of two eggs," I read and headed for the refrigerator.

David's voice stopped me. "How can you get the whites separate from the yolks?" he asked.

And a sudden thought hit me — that although Dave was nearly six, he had never *seen* a raw egg. He had handled a whole egg, he had eaten them scrambled, boiled and fried, but he had no idea at all what the inside of a raw egg looked like, while Mary Sue, his younger sister, had probably known from the time she sat in her high chair watching me crack and drop an egg into boiling water to be poached for her breakfast.

I took an egg out of the refrigerator and called David over to the sink.

"Cup your hands," I said, and I showed him how to hold his fingers and palms curved to hold the egg. Then I explained that the egg was really liquid before it was cooked, and that I'd put it into his hand so he could see it.

I broke the egg and he exclaimed with awe as he felt it in his hands. I told him that the liquid slipping through his fingers was the white and I caught some of it in a cup so he could put his fingers in it later. Then I showed him the yolk and explained that it, too, was a liquid but was held in its shape by a tiny membrane sack, and I told him this was the part of the egg which would have turned into a little chicken if it had been fertilized and hatched. At last, I broke the membrane, and he felt the yolk running through his fingers into the sink. He touched it before it disappeared down the drain and he touched the whites which I had caught in the cup, and the difference in consistency was very plain to him.

He washed his hands with a very satisfied look on his face. Now he knew what an egg looked like, and his general knowledge of life had been improved.

It wasn't too long after this that our cat became obviously pregnant. I felt it would be a good opportunity to explain how a mother carries her babies in her body until they are ready to be born. With a sighted child, this information rarely has to be presented bluntly. He notices that his kitty or his mother or a neighbor is getting "fat", and he asks his questions and receives the answers. But a blind child would be quite unaware of such changes. Since I wanted such information to come from me, I decided to volunteer the information to David.

So we knelt together on the sunwarmed porch where Madame Puss was stretched out in indolence, and I put the small fingers on the swollen sides of the cat.

"She's going to have babies," I explained. "And now they are inside her body where they are kept safe and warm until they are big enough and strong enough to be born."

"Ahhh," David murmured, smoothing his hands over the warm fur. "Isn't that nice, Mummy?" He was silent a moment, and then he added, "Did you have me in you like that? Before I was born?"

"Yes," I said. "Just like that."

And he nodded his head, contented with the knowledge and a little more prepared for living.

One of the most difficult things for me to do when David was small was to explain to him that he was blind. There are mothers, I know, who feel that such an explanation is cruel, that it is better to let the child go on ignorant of the fact that he is different from other children. But I felt that we would be even more cruel, as I felt certain that the day would come when another child would cry the words, "You're blind!" and I wanted David to know what the words meant.

But the opportunity did not present itself for a long time, and then one night when David was a little past four, we came out of the house at night. It was early spring and there were the scents and sounds of May and the sky was bright with stars.

I was carrying Mary Sue, and I turned up her small face to the sky. "Look, honey," I said. "Look at the stars."

David put out his hands. "I want to see them too," he said eagerly. "I want to see the stars, Mummy."

I felt the sharpness of sudden pain in me, and I thought for one second that I could not bear it. But I knew that here was the opportunity I had been seeking. So I put Mary Sue in Al's arms, and I sat on the porch steps, pulling David down beside me.

"Honey," I said and my heart was seeking for the words to say, "honey, some people in this world can see with their eyes — most of the people — but some of them see only with their fingers. Those who can't see with their eyes are called blind people. That's the way you are and Annabel, too. And some things, Davey, are too far away to see with your fingers — ever. Like the stars. Those things we'll have to tell you about. Do you understand?"

He nodded his head against my shoulder. He was only four, he had never even seen light, so how could he miss color and brightness or even the cool glitter of stars when his fingers knew shape and texture and substance?

"That's all right," he said, and it was as though *he* were comforting *me*.

Now that he is twleve, David is very much aware of seeing, and there are times, I'm certain, when he wishes, for the sake of convenience if nothing else, that he could see. (Like the times he wants to do chemical experiments but is not allowed unless his father or his friend, David Tower, are with him.) But he is not, even now, unhappy about his blindness. It is part of his life, and he is learning, I think, to live with it well.

But for all our love, all our planning, all our seeking to do the right thing, we knew we were equipped to bring David only a small way on the road to knowledge, wisdom and experience. We knew, always, that when he was old enough we would put him in a school for blind children, a school equipped to meet his needs, where he would be with children who were like him, where he would be taught the necessary skills that every blind person must learn if he is to be independent.

When he was five, we registered him in the Western Pennsylvania School for Blind Children, and we have always been glad that such was our decision. David is now a well educated little boy, happy and quite well adapted to life, and I give much of the credit to a school which gives him all the things he needs.

Al and I probably made many mistakes with David, but we gave him as much love and understanding and patience as we possessed. We can only hope it was enough. We do not feel, now, that he is cruelly deprived; we do believe that he has a handicap to overcome, but we feel his life can be a beautiful one — filled with a richness and a loveliness that all children deserve. Perhaps this sonnet I wrote some years ago expresses best the way we feel — the way all parents of a blind child feel as they help him find the best in life.

To A Blind Son*

Because I cannot tilt your head and say,
"See, those are stars and that a moon,
And this is twilight when a dying day
Slides gray and silent like a fading tune
From memory. And there, across the sky,
In wide gay arching is a rainbow. See
How gold it is, how lavender, how shy
Its colors are. Look, my son, with me . . ."
Since this I cannot do, I take your hand
And teach it how to touch a leaf or stem
And how distinguish snow or grass or sand
And tell you, as I can, of all of them.
And, somehow, you and I will learn how much
Of beauty-like-the-stars there is to touch.

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THE PRESCHOOL CHILD WHO IS VISUALLY HANDICAPPED

MARTHA TABER

Since the latter part of the 18th century the educational needs of the young child who is visually handicapped have been recognized. From the beginning of the 20th century to the present, educators, social workers, doctors, parents and others have worked together to plan constructive programs for the wholesome development of the preschool blind child and his parents.

Whether a child is congenitally blind or loses his vision at an early age, his parents are confronted with many difficulties in accepting the disability and in adjusting their own attitudes. Few parents are trained for parenthood. It requires great fortitude on their part to replace feelings of bitterness, frustration and even despair with courage and determination to help their child develop a wholesome personality so that he may eventually attend school and participate in home and community activities with a minimum of emotional disturbance on his part.

The relationships of the parents and other members of the family with the young child who is visually handicapped are of utmost importance if he is to develop into a well integrated and wholesome person.

While he is still an infant, it is important that his parents accept him first of all as a child with the same needs as a normal youngster. He should be picked up, fondled, and talked to. Although he does not see his mother's smiling face, her touch and the emotional tone of her voice express warmth and love.

Because of his visual handicap, the young blind child is limited in opportunities to explore his environment, and he becomes dependent upon help from his mother and other members of the family. He needs some physical help and verbal encouragement in learning to stand, to pull himself up, to play, and eventually to walk. Unlike the sighted child, who acquires most of his learning through visual imitation, the blind child is not stimulated by color or shape of objects to reach out and grasp them, or to creep or walk from one part of the room to another. Environment is as important to the visually handicapped child as to the sighted child and perhaps more so, and it is necessary for him to learn to use his other senses in place of vision. In attempts to compensate for his handicap, parents tend to over protect him and thus do not provide opportunities for him to learn about his world by actively participating in caring for his own needs.

To develop the tactual sense, the visually handicapped child must have direct contact with whatever is to be 'observed'. Touching and feeling of everything which is possible and reasonable constitutes most of the day's activities of the blind youngster. The sighted baby, as Dr. Gesell so aptly states, "takes hold of the physical world with his eyes long before he takes hold of it with his hand." By means of tactual sense and through hand-mind coordination, the visually handicapped child gradually acquires intimate information concerning his surroundings.

Stimulation of the auditory sense begins when the child is still an infant. His mother's voice conveys love and affection and, as he grows older, approval and disapproval. Even the visually handicapped young child becomes curious about the movements and noises in the house and outdoors. As he begins to toddle about, instead of sitting passively in his playpen and listening to the radio or phonograph, he should be encouraged and allowed to follow his mother as she moves from room to room, engaged in the usual household activities. Gradually he discovers the placement of various articles of furniture, their use, the location and size of the rooms. Through touching, hearing, smelling and even tasting, his surroundings become familiar and take on meaning.

There is a wealth of material in every home, enough to give the preschool child who is visually handicapped valuable and worthwhile experiences about which he needs to learn before entering a nursery school or kindergarten. Certain noises which he hears in the house and outdoors may at first frighten him, but reassurances and verbal explanations by his mother help him to understand that the ticking of the clock, the discordant sound of the vacuum cleaner, and the backfire of the automobile outside are everyday occurrences. The kitchen can be a fascinating place. Here he has opportunities to feel, smell, and taste various vegetables, fruits, and other foods which mother prepares for the family meals. Unless these experiences are made available to him, he may well think of a potato or any other food as something he gets from a plate by means of a spoon. He should go shopping with his mother or father and be included in the social activities of the family group according to his age and abilities.

Outdoor activities should include opportunities to touch and feel the bark and leaves of the trees, to smell flowers, grass, and upturned earth. If outdoor space is not available for planting seeds and bulbs, such experiences are possible in the house, where a bulb can be placed in a bowl and a few seeds in a flowerpot. Even though the bulb or seeds may not reach maturity, the young child needs to feel of the roots as they begin to develop, and the sprouting leaves.

It is, of course, not possible for the blind child to experience through the tactual sense, the stars, clouds, moving airplanes, to comprehend the vastness of mountains, the ocean, tall buildings; to touch the steaming contents of utensils on a hot stove or the burning leaves of the autumn bonfire. However, his auditory sense compensates for his inability to touch and feel such spatial objects. The importance of naming each object observed and giving short and clear explanations in every new experience cannot be emphasized too much. However, the young blind child should not be exposed to too many new experiences at one time. Unless he is given sufficient time to understand each new experience, he may show signs of considerable strain, anxiety and confusion.

During early childhood, habits formerly called 'blindisms', but more recenty recognized as 'mannerisms', may become so well established that the blind child has great difficulty in overcoming them. These mannerisms are manifested in such movements as body turning, waving of arms, moving head from side to side, gouging, and rubbing the eyes. The best preventive is to provide suitable toys and play materials to keep the youngster's hands busy and opportunities for him to participate in physical and social activities.

Tests for measuring the intelligence and estimating the social maturity of the young blind child are more or less in the experimental stage, and there is still considerable research and study involved in standardizing such tests. About 1930 Dr. Samuel P. Hayes adapted the Stanford-Binet Tests for measuring the mental development of the preschool blind child. Later he offered the Interim Hayes-Binet Tests for the Blind for general use. About this time Dr. Kathryn E. Maxfield and Harriet A. Fjeld made an adaptation of the Vineland Social Maturity Scale for use in estimating the social maturity of the blind child from infancy. A discussion of these tests is summarized in Dr. Hayes' paper presented at the National Conference on the Blind Preschool Child in 1947, as well as some constructive criticisms by Anna S. Elonen at the the conference (see bibliographies).

One important source available to the preschool blind child is the nursery school, which has expanded greatly in the past few years. This service is available in residential schools for the blind and in day schools for both handicapped and non-handicapped. However, the nursery school supplements the home; it does not take its place. Most homes do not have sufficient space or suitable equipment to meet the needs of the growing child, and the nursery school affords valuable opportunities for him to explore and learn more about his world, to develop his muscular coordination, to participate in social activities with others his own age, and ultimately to control his own emotions. At first, the young blind child may be unhappy when he is away from home for even a few hours, but he gradually adjusts to the friendly and understanding teachers, the cheerful playroom equipped with suitable and constructive play materials, and to the other children.

Nursery school procedures which are acceptable for the sighted child are also useful and desirable, with only slight modifications, for the visually handicapped child who may need a little more physical help together with verbal direction and encouragement when he begins to explore and manipulate his environment.

In addition to understanding and enjoying children, the qualified nursery school teacher needs to recognize and understand the attitudes and the problems of the parents. The teacher who is successful in her work with sighted youngsters usually achieves similar success with visually handicapped children. Teacher and parent, working together, learn much from each other.

Services for the visually handicapped child and his parents have gradually expanded and improved, but the increase in the numbers of young children blind from retrolental fibroplasia, a disease occurring in babies born prematurely, has enhanced an awareness on the part of educators, teachers, parents and workers, of the acute need for additional and better services. Social workers, preschool educators, teachers, psychologists, ophthalmologists, and others in the areas of child development and parent education are working together to plan constructive programs and to direct research and study in this visually handicap field.

Available to parents are such services as home visits by trained workers, parent-group meetings, parent-teacher meetings, summer institutes for mother and child, visits to braille and sight-saving classes in schools for the blind and in public schools. All these afford an opportunity to observe visually handicapped children of various ages attending well organized classes and participating in social activities.

For the young child who is visually handicapped there are additional services available to parents, such as individual play sessions, training schools for blind mentally retarded children, and residential diagnostic and treatment centers. The next decade will witness a rapid and greatly enriched service program for the preschool blind child.

IF HE IS BLIND*

BERTHOLD LOWENFELD

As you pass the campus of a school for the blind you might pause for a while to watch the children at play. Some are walking arm in arm chatting, some are running about, some are flying a kite on the big play-field and others are sitting on the lawn amusing themselves by reading. On the playground are a few boys climbing up the jungle gym and there in a sandbox a couple of young ones are building a tunnel through a mountain. Two youngsters, having a little difference of opinion, are trying to solve it by force. All of this seems quite normal and is, as a mater of fact, and you might pass by without even paying any attention to this familiar scene. Knowing, however, that you are on the grounds of the school for the blind you will probably express surprise that these children are blind, they seem so normal, and they are.

In approaching the problem of blind children we must continuously keep in mind that the blind child is first of all a child. His development, his likes and dislikes, his thinking are basically the same as that of all other children. From his earliest childhood on, the blind child must cope with two difficulties which most other children do not encounter.

First, the attitudes toward blindness in his environment, particularly the parents' reactions to him as a blind child, are of greatest importance. All those who expect to become parents look forward to having a child who fulfills their wish for his being at least normal if not superior. When parents learn that their child is blind it affects them profoundly and they have to adjust emotionally to this fact. Success in this adjustment, which is so important to the blind child, depends on the parents' personality, on their own happiness and feelings of security. Most parents need assistance in this adjustment so that they learn to understand their own emotional reactions and also become informed about any particular needs or difficulties which they may meet in the course of their child's development. For these reasons the school for the

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blind provides services for parents of blind preschool children. Visiting preschool workers have helped hundreds of parents and their blind children. In view of the growing number of young blind children this service assumes increased importance. An eye defect (retrolental fibroplasia) connected with extreme premature birth has, since 1942, become the greatest single cause of blindness among children ever known. At present, almost 75% of the blind preschool children are affected by this cause.

Second, it is obvious that the lack of sight necessitates certain adaptations in equipment and skills so far as methods of educating blind children are concerned. This is particularly true in the so-called tool subjects. Some standard procedures in this area are: braille reading and writing, the latter with stylus and slate or with a mechanical braillewriter; typing from the fourth or fifth grade on, the use of the Talking Book (long-playing records on which stories are read) as a supplementary reading medium to compensate somewhat for the slowness of braille reading; mental number work and use of an arithmetic slate as well as of braille for computations; raised diagram drawings and use of solid, plane, and wire forms in geometry; maps either embossed or in relief for the teaching of geography. In the study of the sciences, demonstrations must appeal to the senses of touch, hearing, or smell if they are to be meaningful to the blind student.

Music is the activity most widely associated with blindness, although the common belief that blind children are more musical than others is in no way true. The learning of all instrument-playing takes much greater effort on the part of the blind student since he must read the braille score with his fingers and thus cannot use them in playing his instrument. Therefore, he must rely upon his memory for practicing as well as in performing. The music department has sound-proof practice rooms, all kinds of instruments, numerous pianos, a pipe organ and a modern high fidelity phonograph-recording system. Music is perhaps the most important activity of the blind even if its vocational application should be encouraged only for those with exceptional talent.

The special value of modeling as a creative activity and of drawing and painting for those children with sufficient visual residue is also recognized. Handicrafts have made their place in the education of the blind and the school has a hobby shop in which various skills such as woodworking, weaving, basketry, and leather work are taught. Home-making for girls, and cooking for both boys and girls, are a part of the curriculum. In addition to this prevocational training, blind students must also learn about actual working conditions and be prepared for the real demands of a job. Courses in practical living, in vocational information, and in foot travel and orientation are offered. The school also has a vending stand in operation where students sell all kinds of candy to their fellow students and learn how to buy, to sell, and to develop working morale in a real job situation. The stand limits itself intentionally only to a variety of candies because it is desirable that the children learn to go out and purchase their other needs in local stores.

Physical education and recreation play an important role in the school's program. Calisthenics, gymnastics, tumbling, wrestling, skating, folk dancing, track and field sports and swimming are some of the activities which blind children can enjoy with only slight adaptations. Hiking and camping offer opportunities for the observation of nature and animal and plant life. Cub and Boy and Girl Scout programs are pursued at the school.

The education of blind children calls not only for changes and adaptations like those already discussed but also for changes in methods due to the psychological effects of blindness. The teacher of blind children knows that verbal descriptions of objects do not suffice but that the blind pupil must be supplied with concrete experiences of many objects and situations in his environment. Children may observe the object itself or a model of the object in order to gain an actual knowledge of its form, size, and other qualities. Such concreteness in teaching helps the pupils to experience the world in which they live and to feel a part of it. Therefore, the children frequently go out for study excursions and visit museums and zoos where they are given opportunities to observe objects of all kinds. The school for the blind also has a considerable collection of teaching models by which the children learn the form and shape of things which cannot easily be observed in reality or in totality such as a bridge, various types of machinery, trains, boats, or flowers.

One of the greatest problems caused by blindness is the difficulty in getting about. Blind children must become as independent as possible in walking around in familiar territory and should learn to move about in unfamilar surroundings. They must become alert to and aware of the many sense clues which are so important in orientation and getting about. The future success of a blind person at college or at work depends to a considerable extent upon his skill in getting about. Therefore, the school conducts a course in foot travel and orientation for its totally blind students. Those who have some sight are familiarized with the best ways of getting about in traffic.

Another factor that must be considered in the education of blind children is their inability to learn by visual imitation. Many social behavior forms are acquired on the basis of observing others and imitation is of great importance in the learning of walking, talking, and playing. A blind child, for instance, must learn to enter a bus or street car and to find a seat or place for himself through repeated actual experience while a seeing child learns this as a matter of course by observing others. The children are taught by study units, particularly during their first years at school. For instance a unit on the grocery store acquaints the blind child with all important features of such a place about which he is not likely to learn if left to himself. Teachers of blind children must supply their youngsters with many of the experiences which can be taken for granted in the case of children with sight.

We are, of course, fully aware of the importance of keeping our children in close contact with their families and with the community. Whenever a child lives near enough he is accepted as a day pupil so that he can remain with his family. For those children who are in residence, we encourage home visits for weekends and for as many holidays as possible. We have found that parents are most cooperative and happy about the friendly relationship that we have with them. Churches and Sunday Schools are attended by the children in accordance with the religious preference of their parents and we value very highly the services rendered by local churches in the interest of the spiritual growth of the children.

The school has a rich extracurricular and social program. Most of it is centered around the activities of the student body and the various clubs.

Dances, parties of all kinds, outings, going to concerts, movies, and plays are frequently arranged occasions.

The school admits children when they are able to take part in the kindergarten or first grade activities. From then on the children progress grade by grade approximately as they would if they attended public schools with the modification and supplementations mentioned before. An increasing number of residential schools have either all or some of their senior high school students attend regular local high schools where they work and compete with their seeing fellow students. They are still assisted by the school which provides guidance, tutoring, and reader-service in order to make this first true experience of integration a successful one. Many high school graduates continue their studies at colleges and universities. Since practically all their studies must be done by having the texts read to them, the State assists blind college students by paying readers' fees.

Blind adolescents are greatly concerned with their vocational and professional outlook and want to find out along which line their own interests and aptitudes could be developed with best chances for success. The school offers only prevocational training but a field worker on the staff gives individual vocational guidance to the pupils and serves as the connecting link between the school and the vocational rehabilitation services. He also assists students who leave the school before graduation in finding local employment or in making themselves as useful as possible as members of their families.

If you are one of the many who believe that blind children are unhappy and helpless, this report about their activities may have made you question this idea. Actually, blind children if left to themselves do not show any yearning for sight, or sadness that they are unable to see. However, people around them may influence them adversely by their own reactions to blindness. They may not only give them the feeling that they are missing something but also overprotect them to an extent which may result in inactivity and apparent helplessness. When children enter the school it is often the first and most difficult task to help them regain self-confidence and give them the feeling that they are accepted and liked. At the school for the blind specially trained teachers know how important it is to find individually for each child tasks which will challenge his abilities. They also know that they must give him just enough assistance so that he will not become discouraged in his pursuit. Thus he learns in a stimulating and challenging environment what he can do and develops a feeling of security which will enable him to lead an active and contributing life later on.

As among seeing children there are also some slow-learning children among the blind. For them a special opportunity class is conducted stressing practical knowledge, experience and work rather than academic studies. Individualized remedial instruction is provided for children who either enter school at an advanced age or need special help, particularly in such skills as braille reading and writing.

The children's living quarters are suited in every way for the purpose of giving boys and girls pleasant and homelike surroundings. They include living, lounging and recreation rooms, bedrooms or small dormitories, dining rooms and all other facilities necessary for a residential school. The young boys and girls are housed in a building especially for their care and welfare.

The older girls and boys have separate residence halls where they are grouped according to ages. The school building has classrooms, special facilities for music, including insulated practice rooms, and a typing room, a library, an auditorium and administration and business offices. Well-equipped playgrounds and a large playfield provide opportunities for physical exercise and recreation. The combination of thorough school work and happy living conditions makes a good environment for any boy or girl.

All costs of operating the school are met by the state and the school is under the administration of the State Department of Education as an integral part of the public school system of the state.

If you are interested in receiving more detailed information about the education of blind children and the services provided by the School for the Blind, please write to the superintendent of your state school. Better still, plan to visit and see for yourself how the State provides education for its blind children so that they may grow up and share the advantages and responsibilities enjoyed by others living in our great democracy.

THE EDUCATION OF THE UNGRADED BLIND CHILD

PAUL C. MITCHELL

The ungraded blind child is one who, for one reason or another, cannot maintain the minimum achievement required to remain in a grade where he might be expected to participate. Since, in addition to his handicap of blindness, this lack of ability is an obstacle to his success, he is multiply handicapped. It is impossible to define accurately the ability of an ungraded child who may be held to be borderline, backward, a slow learner or even mentally handicapped. However, for the purpose of discourse, the following general ideas may be considered. Aside from the mentally handicapped, an ungraded child may be so because of any number of conditions, most of which some treatment or professional attention may correct. Some examples of these conditions, existing separately or in combination, may be listed as follows: (1) poor physical health; (2) emotional disturbances; (3) lack of proper preschool or home training; (4) poor tactile ability (physiologically) in learning to read Braille.

The mentally handicapped may be grouped as follows:

1. Mentally backward[1] (15 to 18 per cent of the school population): possibly with intelligence quotients between 75 and 89.
2. Mentally retarded: possibly with intelligence quotients ranging from 50 to 75.
3. Feeble-minded: possibly with intelligence quotients less than 50, incapable of gaining control over words and numbers, and requiring care and supervision for their own protection or for the protection of others.

Schools and classes for the blind possess the necessary know-how and are equipped to follow corrective measures for the child who is ungraded for reasons of health, emotional disturbances, lack of fundamental pre-school or home training, and similar causes. Resident nurses, social workers, psychologists, neurologists, and trained educators, together with available physicians, are able to apply scientific remedial steps in an effort to get each of these pupils into the most productive program.

While the mentally backward cannot cope successfully with the average school curriculum, they can gain fair control of words and numbers. Unfortunately, in some school systems these children are carried in the regular classes with no provision made for them.

The education of the mentally retarded is a far more difficult problem, and represents the last frontier of all education. If the blind person of normal intelligence has a difficult time in securing for himself an accepted place in modern society, the mentally handicapped blind finds it difficult at every step. Public conceptions of the blind do not help when all blind persons are classified[2] either as ‘beggars’ or occasionally as ‘geniuses’. The sighted world, confusing lack of vision with lack of wisdom, feel that the blind are defective in understanding.[3] Actually some compensating conditions aid the mentally retarded. Blind persons do not consider their handicaps completely incapacitating. Contrary to public opinions, to a blind person there is no ‘blackness’, no ‘eternal night’, no ‘dark despair’. If this is true for the intellectually normal blind, it is doubly true for the mentally handicapped blind. The mentally handicapped blind are less apprehensive about the future, more constant and routine in their activities, more satisfied with meek and lowly chores, and therefore capable of limited training for limited opportunities. More facets in the field of useful employment exist for them in the modern world than were ever dreamed in previous times. It can be truly boasted of our day that society does have a niche for nearly every individual.

The majority of the mentally retarded are well-behaved, quiet, unobtrusive, and dependable. Society is beginning now to understand that the mentally retarded in sighted schools will adjust and become accepted citizens in the community. Perhaps more hope can be held out for the mentally retarded blind.

Thus the purpose of all programs for the mentally retarded blind is to provide an opportunity to develop capabilities within the limits of their handicap. Such pupils, if left in the regular grades, may become social misfits since the grade work cannot be modified to be fair to both the blind retardate and the intellectually normal blind child.

In the past it has been the custom, in many schools for the blind and in some public schools, to carry the mentally retarded child through the regular classes with attendant damage to the ungraded child and with jeopardy to the advancement and success of the graded child.

The problem has been approached in various ways. One has been the development of a ‘diluted’ regular program; the results have been unsatisfactory. A more satisfactory plan has been the building of a special curriculum to meet the needs of the ungraded child. Some twenty years ago the New York Institute for the Education of the Blind began developing such a special curriculum for those pupils who could not maintain a minimum of requirements for graded work according to New York State Regents syllabi. The ‘academic’ work centers around the area of citizenship, with attention to reading, writing and numbers as may be needed by the individual pupil and within the limits of ability. The curriculum was developed by units in the same order as the needs of the retarded pupils arise, — namely, in the home, the school, the city or community, the country, and the world. Thus, the program is not a modified grade school or high school curriculum.

The language and style are purposely kept at a level that can be attained by the mentally backward pupil and used by the mentally retarded. *Things to Do,* as a reader, aims to make the pupil a better member of his family. For example "Unit One, Daily Living in the Home"[4] considers "Father's work, Mother's work, food, clothing, home, care of children, sharing in the home by helping, keeping the rules, safety in the home, fire prevention, accident prevention, manners and grooming." "Unit II, Daily Living In Our Community" covers project studies on being a good neighbor, safety on the streets, correct behavior in public places, parks and beaches, public buildings, buses and subways, dress, helping our community, shopping in chain and local stores, recreation, transportation, the Fire Department, the Police Department, Bureaus, Health Department, etc. It can be at once apparent that the use of numbers and necessary arithmetic is involved at several points. The units are supplemented by other useful and pertinent reading material,[5] such as stories of history and current events[6] and science.[7]

The progress of these pupils is further advanced by admission to regular classes in industrial arts, music, and similar subjects. Personality development is enhanced by entry into Scouts, dramatics and other extra-curricular activities. Physical life and individuality are strengthened by athletics, field trips, and vocational tryouts.

The success of such a program has been marked by those pupils who have found employment and success in their chosen work in life.

While the schools and classes for the blind are meeting the problems of the ungraded child in a scientific manner, progress and continued success would be enhanced by more attention to the following:

1. More publicity and recruitment for the training of personnel
2. Procurement of funds for teacher training scholarships, development of special equipment, teaching aids, and research into the causes, prevention and treatment of the mentally retarded blind
3. Increased clinical services, physical and psychological[8]
4. Orientation courses for supervisors and parents
5. Research and evaluation for vocational placements in industry and publicity for better public understanding of the problems
6. Continued study and development of a special curricula for training of the ungraded and/or mentally retarded child with a clear enunciation of the goals to be attained and the best type of program to be followed.[9]

The non-educable, or those permanently incapable of learning in ordinary schools and classes for the blind, are:

1. The feeble minded: mental defectives so pronounced as to require care, supervision and control for their own protection or for the protection of others
2. Imbeciles: incapable of managing themselves or their affairs
3. Idiots: unable to guard themselves against common physical danger.

The educators of exceptional children must meet each and every classification of this group at some time in the school program.

A school should not have to assume the responsibility of a custodial unit. Many schools are exclusive in that an ungraded blind child is not carried on the rolls. Certainly no school can carry an uneducable child for any length of time and rightly be considered a school.

What happens to the child when he is adjudged non-educable and is returned to the social agencies of his community is a question in which a well organized society should be interested. No effective service now exists for these excluded children in the community.

We should have a well developed service program where trained, experienced, and well-paid custodians would meet the needs of this type of exceptional child as long as he lives, — where comfort, scientific approaches, and humane and objective procedures would be followed. Such a program is long overdue.

Parents of blind children are most reluctant to accept the realization of the handicap of blindness, not to mention a second obstacle of mental retardation. Also it is often difficult for a parent to accept and realize the mental deficiency of a child because of the lack of expert guidance, opinion and advice. Such a child may actually achieve with favorable outlook in the early years, but arrive at a point beyond which there is little or no educational progress.

This time in the life of family, the parents and the child is the darkest, most humiliating and cruel experience. If society would meet the problem in an objective manner, and devise scientific procedures to condition both the parent and the child, this 'day of decision' could be an enlightened beginning for the child and the family.

The security of decision and objective evaluation would be akin to the feeling an old soldier has when he realizes all the days of regimentation, fighting, and imprisonment are over and he is now to be discharged with honor to a lifelong pension and security from his government. For the non-educable child it could mean no more struggling with academic subjects beyond his grasp, no more routine of school and classes, a mental freedom, and a feeling of relief from constant frustration. Likewise, once the bridge of objectivity and decision is crossed, the family and parents would find a heavy burden of anxiety, bewilderment and apprehension lifted.

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THE USE OF THE WORKSHOP TECHNIQUE AS A CONTRIBUTION TO THE EDUCATION OF THE BLIND CHILD

GEORGIE LEE ABEL

The workshop technique as it has been used in various types of state and national meetings has made a definite contribution to the education of blind children. This technique as a way of learning, as a productive group experience, or as an evaluation process of the participants has affected both the educators of blind children and the attitudes of professional workers toward these children. Of equal importance is the fact that the publications resulting from this process have greatly enriched the specialized literature in this field. At least four publications of national significance in this area have appeared since 1951. There are also several mimeographed and some printed proceedings which have come from workshops conducted on campuses of colleges and universities, residential schools for the blind, and public schools offering educational programs for blind with sighted children.

Philosophy and Terminology

The philosophy and terminology governing such procedures are fundamentally the same as those used by any other group of people working in any other area of special interest. It follows that the strengths and weaknesses of the program as applied to this field of education are also the same as in any other given situation. When the workshop procedure functions well, it demands a desire on the part of the individuals to work together according to a democratic process; a common interest that must stimulate the best possible group dynamics approach; an equal desire, if possible, to contribute to and gain from others ideas which are basic to continued growth. When the process does not function well, some of the weaknesses are likely to be traced to the following problems. The participants may need more maturity and confidence than may actually exist in the particular group. The group may be much too heterogeneous for the best possible results in a given amount of time. The leadership available may at times lack sufficient skill in human relations to cope with certain problems and resolve differences in the most constructive way. There may have been much too little preplanning for the smooth functioning of the groups, and there also may have been too little information available to the participants prior to the opening of the meeting.

Definitions of the workshop procedure are numerous and varied. Terminology has grown so rapidly that one often has to define the meaning of the term used before describing it or putting it into operation. Since the purpose of this discussion is to consider the use of the procedures as it may have contributed to the education of blind children, it does not seem necessary to devote much space here to definition.

To this writer, the workshop is a learning experience for a group of people with common interests who come together with a desire to gain knowledge and improve their skill in human relations. It provides an opportunity for individuals to pool their thinking and share their problems and experiences. If it is a successful group experience, it can provide for each individual an opportunity to be influenced constructively by the strength of the group.

Historical Treatment of Contributions

Perhaps the actual contribution of the workshop technique to the education of blind children can best be told through a brief discussion of certain projects in which various adaptations of the procedure were used. In the interest of an orderly presentation of the various contributions, they will be mentioned on the basis of their historical appearance. There will be some discussion of the possible effect that each chosen event may have had on the education of blind children.

The first attempt to apply certain workshop techniques to a national meeting dealing with a topic concerning blind children was the National Work Session on the Preschool Blind Child held at the American Foundation for the Blind in April 1951. Forty people representing varied professional backgrounds and experience which seemed important in developing services to preschool blind children and their families were invited. The common purpose of the participants, as stated in the invitation, was to come to the meeting prepared to draw heavily upon their previous experience and to pool their reactions and knowledge with others in behalf of these young blind children and their families. This work session was structured to some extent since each of the participants was provided with a definite agenda representing the areas to be explored as the content for written reactions to be submitted for publication. Participants came to this meeting knowing that it was an intensive workshop and that published proceedings would result. Their goals were set for them. They were asked to attempt to develop clarifications of thinking and standards which might be helpful to people throughout the country who were attempting to set up programs in this area. The inspiration of this meeting and the tireless work of the participants resulted from their desire to find the best possible answers concerning the needs and potentialities of preschool blind children.

The second workshop of national significance was that conducted by the American Association of Instructors of the Blind at its national convention held at Louisville, Kentucky, June 1952. This large meeting involved many educators divided into fourteen work groups. The teachers were privileged to choose their group prior to the time of their attendance at the convention. In the minds of both the teachers and the administrators of this organization, the meeting was considered a landmark. It was thought to be so successful that the plan was adopted for the next convention, held at Batavia, New York, June 27, 1954. The proceedings for both sessions have been published and have provided an excellent source of reference for those interested in teaching blind children, with the added weight that they represent the first-hand experience of people who have actually taught blind children. This type of procedure proved that a large national organization could provide not only an opportunity for teachers to explore their problems in special interest groups but also it afforded an atmosphere in which teachers and administrators could clarify their problems and share them with each other. Thus the influence of the group process on professional personnel in a large national organization was shown to be a contribution to those who participated and to those who read the proceedings.

There have been a number of smaller regional workshops in the various residential schools for the blind which involved teachers and administrators from neighboring states. The process was considered to be of sufficient importance for the national organization, the American Association of Instructors of the Blind, to set up a national committee on regional meetings to help facilitate the work. The report of this committee presented at the 1954 meeting of the Association stated that during the two biennial periods, 1950 - 1954, fourteen states had been hosts to eighteen regional conferences. Undoubtedly all of these conferences used various types of workshop techniques. Topics pursued at these regional workshops as reported by the committee represented such areas as: preschool, home economics and crafts, speech arts, arithmetic, industrial arts, mental measurement, music, piano tuning, houseparents, physical education, as well as other divisions of the academic curriculum.

One of the most interesting factors about the workshop movement has been in its focusing of attention on problems which had received very little previous consideration. For example, one school for the blind, with the help of a private national organization, sponsored the first meeting for houseparents in a school for the blind. Out of this cooperative effort grew a second such meeting, in another school for the blind in a different region of the country. It seems important to note that out of small work groups at regional meetings and at the convention of the American Association of Instructors of the Blind, as well as work groups enrolled in courses at colleges and universities, there were recommendations which helped to bring about changes and improvements in procedures in national meetings. An example of this can be found in the written recommendations calling for more meetings and training facilities for houseparents in residential schools for the blind. Such written requests were called for in publications like *The Slow Learning Visually Handicapped Child*, mimeographed at the Iowa Braille and Sight Saving School; the San Francisco State College Report of their Institute on the Education of Blind Children; and the Peabody Report of their Workshop in this area. These reports, representing both teachers and administrators, undoubtedly helped bring about a section for houseparents in the recent American Association of Instructors of the Blind convention.

The first time that the workshop technique was applied to the Education of Blind Children at the teacher preparation level was at San Francisco State College during the summer of 1952. Ninety-four participants attended this meeting, for which college credit was offered and mimeographed proceedings were made available through San Francisco State College in cooperation with the American Foundation for the Blind. Since that meeting, other colleges and universities have set up various types of workshop courses in cooperation with the American Foundation for the Blind. Among them are George Peabody College for Teachers, Nashville, Tennessee; the University of Texas, Austin, Texas; the University of Cincinnati, Cincinnati, Ohio; and Syracuse University, Syracuse, New York. In all of these college and university courses, however, there was a combination of structured and non-structured sessions where lecturers set forth certain basic information, and small work groups made their applications of the structured content on the basis of their individual needs.

Workshop procedures applied to teacher preparation courses offer an opportunity for both educational and emotional growth for teachers of blind children. Where the atmosphere permits sufficient flexibility, it is possible to apply all types of information and various ways of gaining it to the individual needs of each teacher in training. Through the process of informal sharing of backgrounds and experiences, the in-service teacher can bring to the group her belief in the potentialities of blind children as well as her understanding of the many problems not yet solved. At the same time, the new teacher entering this specialized program for the first time contributes the current information and fresh viewpoint from general education which is basic to all specialization.

Perhaps the most exciting examples in the growth of individuals participating in these workshops has been in the teachers' opportunities for exploration of their own feelings toward blindness as well as in their better understanding of the problems of a blind individual living in a society largely geared for those who see. The individual unsigned forms, as well as other evaluation techniques used, have revealed that many of the teachers expressed their greatest appreciation for the opportunity to know blind individuals and to observe blind children both in a demonstration setting and in films. It is not infrequent that teachers sign up for a new position in a program for blind children without realizing that they may have emotional problems in relation to the children whom they will be teaching. It is inspiring to observe a working group as it grows to the point where it can recognize the importance of emotional balance and objectivity which must be understood before methods of procedure can be really effective with these children.

The first highly unstructured workshop type of conference dealing with a specific problem in the area of the education of blind children was the National Work Session on the Education of the Blind with the Sighted. This conference was conducted by Syracuse University and the American Foundation for the Blind. Like the previously-mentioned national work session dealing with the needs of the preschool blind child, the American Foundation for the Blind was pleased to cooperate in calling together this group. The selection of this problem, like the previous one, resulted from pressures and numerous requests from the field for help in clarification and suggestions for future goals. Again the plan used was to invite most of the people because they had had specific experience in this type of education, or because they were responsible for the administration of such a plan. The difference in this meeting and the first national work session was that the participants convened at a beautiful, quiet summer camp owned by Syracuse University where they could be free from the distracting influences of a large city. This location added much to the success of a group dynamics approach. In such a place there was freedom for relaxed and flexible participation without agenda or reference libraries. The participants simply drew heavily on their experience in general education and their knowledge of the special field. Of perhaps the greatest importance, they were able to experience the process of individual growth as influenced by the group. The Pine Brook Report resulted from intensive work in an atmosphere conducive to both work and inspiration. There was also the motivation of a type of pioneer spirit, since the participants knew that this was the first meeting of its kind ever called. They like all the groups reported in this discussion were participating in a learning experience with topics not previously explored by this process.

Reflections Concerning Workshop Procedures

It has been the pleasure of the writer to coordinate or act as participant in each of the types of projects which have been presented here. Because of the current interest in the workshop as a technique and the questions that some people have concerning its weaknesses, it might help to discuss briefly some of the effects of the procedure. There have been various kinds of meetings in which the process was employed with time limits of from six-week courses with two to four hours a day to short one-day sessions of approximately four hours in length. It was usually found that where the group was sufficiently homogeneous, and the motivation was right, the amount and quality of work was surprising even to the participants. In those groups with great variation in backgrounds and experience, it was much more necessary to structure enough of the procedure that they might feel more secure. This procedure also provided a comparable frame of reference for most of them. It sometimes happens that at least one participant becomes quite lost in a highly democratic process. This has to be watched, particularly in groups which are conducted as teacher preparation courses. However, can we feel sure that certain students are not also lost in many of the traditional lecture courses? Perhaps the great difference is that in the traditional courses the lost ones are not likely to be exposed to the members in attendance. In some of the workshops the groups have recognized this problem and have actually helped the individual with the problems achieve rapport with the group. It has been found that the length of time for meetings may not need too much consideration if the problems to be explored and the procedures to be followed are sufficiently crystallized.

Perhaps one of the most valuable contributions in the workshop as a procedure in conventions, regional meetings, and training courses is in the opportunity for people with great differences of opinion to come together and really discuss their feelings, explore their attitudes toward problems, and listen more objectively to the equally strong conflicting reactions of others.

As the participants analyze and clarify their own opinions, and then attempt to evaluate the concepts of others, often under skillful leadership they are able to recognize that they do have many bases of agreement. Through clearer communication, they can understand their differences and recognize goals which involve constructive human relations and greater knowledge than they had previously acquired. Of one thing they can ultimately be sure in a good functional group process, — they should have the same motivation, which is the welfare and happiness of the children whom they teach.

Blind individuals represent a very small percent of the total population, and the professional personnel necessary to meet their educational needs comprises an even smaller number. In groups where people are apt to know each other so well, problems can arise which result from knowing each other's weaknesses and possible difficulties. People who are apt to anticipate weaknesses in others may find themselves blocking their reactions to the possible contributions of some very worthwhile participant. Some topic may get thrown out of an agenda because of a feeling that it would be impossible for certain groups to give the subject matter objective treatment. Perhaps as we are able to develop and refine our techniques, and as we secure more skillful leadership in groups using this procedure, we should be able to explore with more productive results some of the crucial questions confronting educators today. In such objective procedures people will be more likely to ask, — shall we look at the research concerning the question or could we find ways of trying a new idea before condemning it? It is the belief of this writer that such constructive and objective evaluations are happening in the education of blind children today because people with experience, strong motivation in behalf of blind children, and a great desire to improve services are working together in a more democratic atmosphere and with greater skill as professional people. Added to these objective procedures must surely come greater skill in communication and more experience involving good human relations.

SUMMARY

The workshop technique applied to the education of blind children has yielded valuable results both to the participants in various types of projects and to the professional literature available to those who pursue further study in this field. The same strengths and weaknesses affecting any procedures of this type seem apparent when groups of people meet for the purpose of pooling their efforts in behalf of blind children. There are evidences in the large national organization meetings and the smaller regional workshops that individuals are enthusiastic about the process and that they have demonstrated in their published proceedings that they were able to make decisions and recommendations which were helpful in bringing about constructive changes in philosophy in this field. The process as an aid in teacher preparation courses has been analyzed by a number of evaluation techniques and seems to indicate that prospective and experienced teachers are able to realize both professional improvement and emotional growth.

This discussion should not be looked upon as a brief for this technique against any other type of professional improvement, but rather it attempts to present some actual examples of projects at state, regional and national level which have demonstrated in writing their value to those who work with blind children.

Finally, the greatest contribution to the education of blind children which has come through the various workshop techniques may be found in the intangible factors which are most difficult to measure. The great value may be found in the fact that all types of professional people must sit down together in an atmosphere which permits serious examination of the basic factors involved in meeting the needs of blind individuals as well as the equally important problem of professional growth necessary for those who develop programs to meet the needs of these children.

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SOME SPECIAL ASPECTS OF AN ADEQUATE VOCATIONAL TRAINING AND EMPLOYMENT PROGRAM FOR THE BLIND

HARRY J. SPAR

Work for the blind is a field of specialization in which many professions operate. Vocational training and employment constitute an area of the field in which the extent of its specialization is well demonstrated. The social case worker, the vocational counselor, the psychologist, the corrective therapist, and other professional workers must understand, if their work in this field is to be effective, the meaning of blindness, — the effects produced by various eye conditions which cause blindness; the implications of blindness; the mental and emotional concomitants of blindness; and the social and economic conditions which blindness tends to create.

We shall not attempt to blueprint an adequate program of vocational training and employment for the blind in the brief space that can be allotted to this chapter. We shall seek, rather, to point up some of the ways in which training and employment services for the blind are different from conventional training and employment services, and to indicate the bases for such difference. In this way, the student exploring the field of work for the blind may gain some impression both as to the policies and techniques employed in the conduct of adequate vocational services for the blind and as to the specialized nature of the field of work for the blind.

Vocational training for the blind falls into two fairly distinct categories. One category encompasses strictly vocational training, — the learning of special skills and knowledge required for successful employment in specific trades or professions. Blind persons who undertake such training should have achieved a successful adjustment to their blindness. They do not require, for this type of training, the specialized program of an agency for the blind. Agencies for the blind are not likely to find a sufficient number of blind persons requiring training in any particular trade or profession to enable them to maintain the staff and acquire the experiences necessary to provide a standard of training comparable to that of any good professional or technical school. A blind person equipped to undertake specialized training (other than training for work in the field for the blind, training in the operation of service stands, or a few other specialized areas of employment with which some agencies for the blind have acquired extensive experience) should be motivated by the same considerations in selecting a training facility as motivate any seeing person interested in obtaining the same type of training.

The category of vocational training for the blind which lies within the purview of a specialized program of work for the blind encompasses the broad area of prevocational training for the blind in which the problems of blindness dictate paramount attention to special procedures and techniques which conventional prevocational programs cannot offer. This type of training may be preparatory either to semi-skilled or unskilled employment in which vocational training is acquired on the job, or to vocational training of the type referred to above. It is with the broad area of prevocational training for the blind that vocational rehabilitation programs for the blind are primarily concerned and with which we shall be concerned in this chapter.

Most persons who are classified as blind[1] possess some degree of usable vision. The amount and the type of their vision can have far-reaching emotional as well as practical significance for them and it is important for them to understand both the usefulness and the limitations of their vision if it is to serve as an asset rather than as a liability.

Professional workers involved in the training and employment of blind persons should possess sufficient knowledge of the structure of the eye and of common eye conditions to enable them to interpret most eye reports and to understand the ophthalmological explanation of those reports which they are unable to interpret themselves. The blind person who possesses a small amount of vision frequently requires careful guidance to help him cope with the problems which his vision may present and to understand how to make best use of his vision. A blind person who has peripheral vision only and finds it necessary to tilt his head and rotate his better eye to see in front of him, or one who suffers from oscillating eyes, or one who suffers from disfigurement of the eyes encounters social reaction to his efforts to see which can produce very serious emotional complications for him if he is not helped to fully appreciate the facts about his eye condition. A person who possesses very near or blurred vision is confronted with a different type of problem from the person who possesses fairly sharp, clear vision within a highly contracted visual field and who is unable to see at all outside of that field. A blind person suffering from apparitions or distortions in vision is faced with still another type of problem. The problem of the blind person possessing a small amount of vision is not only one of making best use of that vision but also of accommodating to the social reactions and emotional impacts which its use may produce. There is a natural and irrepressible tendency for anyone possessing any degree of vision at all to use that vision to the utmost. Such a person should be helped to use his vision through guidance and, where possible, through the use of special lenses and other aids; at the same time, he should be helped to understand the practical limits to the usability of his vision.

It is frequently far simpler to teach a totally blind person to make best use of his remaining senses than it is to teach a blind person possessing some usable vision how to use that vision in combination with his tactile and other senses to best advantage. There exists no single procedure or course of action that will help the blind person possessing usable vision to make that vision truly useful. Every such blind person presents his own special problem, and those who are to help him meet his problem must observe and appraise it before they can help him understand and resolve it.

Adjustment to Blindness

Before proceeding, some comment on the phrase 'adjustment to blindness' may serve to add meaning to this discussion.

It has been suggested that a blind person does not 'adjust' to his blindness but, rather, that he reorganizes his remaining senses so as to function not as a partial personality, — the residue of the personality he was before he lost his vision or a part of the personality he might have been if he had vision, — but as a person with little or no sight whose personality is complete without the presence or with the near absence of vision. As wholeness is an essential quality of a healthy personality, there can be no quarrel with this concept; but it must not be inferred that the personalities of all blind persons are essentially the same or that the personality of a blind person is necessarily more different from the personality of a seeing person than the personalities of any two seeing persons are likely to be different from each other. Such a mistaken inference has led some students of the highly diversified and complex psychology of blindness to propound a theory on the 'psychology of the blind'. This theory seems to imply that all blind persons possess certain common propensities, feelings, reaction patterns, etc. Experience with the blind not only fails to support this theory but very strikingly contradicts it.

The question as to whether the term 'adjustment to blindness' properly describes the psychological reorganization which takes place with the onset of blindness and whether 'personality reorganization' or some other similar term should properly be substituted for it appears to this writer to be merely a semantic quibble. The way to clarify language is not by dislodging commonly used and well entrenched terminology but by determining precisely what such terminology is intended to signify. In speaking of 'adjustment to blindness', we are not so much concerned with the psychological processes involved as we are with the end results of those processes.

'Adjustment to blindness' can assume practical significance if it is defined as the ability of a blind person to reduce the limiting effects of his blindness to their minimum and to accept and function successfully with its irreducible effects. These effects will not be identical or even closely similar for all blind persons; nor will any particular few blind persons for whom these effects may be similar function with them in the same way. A person's intellectual capacity and development, emotional maturity, social and vocational background, and many other factors will determine how he will, — and, what is equally important, how he should, — function with the effects of blindness. Adjustment to blindness is not a state. It is not static. It is an active ability rather than a capacity and, as such, it must be dynamic. The adjustment to blindness of a person cannot be evaluated by the extent to which he fits a particular stereotype.

The popular concept of a blind person who is well adjusted to his blindness is that of a genial, poised, well spoken, moderately prosperous paragon of virtue. This concept probably rises from a common weakness of human vanity, a tendency to try to fashion others after the image which we hold of ourselves,—an image which, if we may be permitted the observation, is seldom a good likeness. This is a tendency against which professional workers who are concerned in any area of guidance or rehabilitation must be constantly on guard. If we are to help a person reorganize his sensory functioning and personality to achieve a satisfactory adjustment to blindness, we must be guided, so to speak, by the contours of the basic structure. A person, by virtue of blindness or any other handicap, must not be denied his right to individuality and should not be encouraged to assume a posture that will make him odd and unacceptable in his particular cultural and social setting.

The onset of blindness does not produce any extra sense or any extra acuity of remaining senses to substitute for the absence of vision. Failure to appreciate this fact not infrequently results in the placement of blind persons at occupations which it is impossible for them to perform. There is nothing that a blind person can accomplish through the proper use of his remaining senses that his seeing counterpart could not accomplish equally well without using his vision if he had motivation, training, and experience comparable to that of the blind person. The challenge and the promise for the blind person does not lie in any mysterious extra-sensory or supersensory ability, but rather in his ability to make better use as a blind person of his remaining senses, his ingenuity, his memory, etc., than he did or might have done as a seeing person. Fortunately, the human being is endowed with far greater capacities than he normally finds it necessary or desirable to use. When he loses or lacks a major sensory ability he can, through the exercise of extra effort, make better use of his remaining abilities so as to enable him to substitute the functioning of these abilities to a practicable extent for the functioning of the ability he lacks.

The loss of vision in itself is less disturbing to a blind person who has not adjusted to his blindness than are his feelings of loss of prestige among his family, friends, and associates. Once a blind person has accepted the finality and inexorability of his blindness, he is rather quick to appreciate his remaining potential. The confidence which a newly blinded person can develop in his ability to function as a blind person will be affected by the importance which vision held in his occupation, his cultural interests, his asthetic pursuits, etc.; but the greatest barrier to the development of the self-confidence of a blind person is likely to lie in his feelings that those who are important to him do not accept him as anything more than an ineffectual part of the person he was before he lost his sight or that he might be if he could see. These feelings may result in withdrawal and defeatism or in attitudes of compensatory aggression reflected in unrealistic ambitions, bravado, excessive extroversion, resentment against persons and agencies offering him help, etc. Withdrawal, unless it is extreme, is usually easier to correct than are the overly aggressive responses to the effects of blindness; but the aggression may often augur well for the eventual adjustment of the blind person.

Vocational Diagnosis

Vocational diagnosis should be a prerequisite to any vocational guidance and training. It is particularly important that the vocational guidance and training of a blind person be based on as much specific knowledge as can be developed about his background, his current psychological, social, and economic status, his physical condition, his capacities and interests, and the opportunities that might be available to him. Blindness itself and the widespread misconceptions as to both the limitations and abilities of blind persons serve to narrow the latitude of vocational choice for a blind person and to greatly increase the investment necessary for his preparation for a vocational objective. Training of a blind person which results in failure to achieve the motivating objective or a satisfactory substitute objective not only represents a costly loss of time and energy but is likely to produce a serious and sometimes irretrievable setback in morale.

The influence of a blind person's background upon his vocational preference is not changed essentially by his blindness. It is important to bear this fact in mind in attempting to relate the vocational objective of a newly blinded person to the vocational training and experience which he may have received prior to the loss of his vision. In a surprising number of instances, careful analysis of the work in which a blind person engaged prior to the loss of his vision will reveal the possibility of his continuing in this work or in a type of work which will enable him to utilize at least some of the vocational assets which he had developed before the onset of his blindness. Such a possibility should ordinarily be carefully explored, and only when it is clear that it holds no practical value should consideration be given to helping a blind person prepare for a type of work which is foreign to his past endeavors and achievements.

The psychological readiness of a blind person for training can very often determine the success or failure of his training. It encompasses his achievement of insight into his particular problem as a blind person, his development of an attitude of realistic optimism toward his training, confidence on the part of persons whom he considers to be important to him in his ability to succeed not merely as a blind person but in terms of the standards of success that apply to his particular position in his family and community, and the reduction to the fullest possible extent of economic insecurity during the entire period preceding his anticipated employment.

There can be no justification for training around a removable or a reducible handicap. Enrollment of a blind person in a course of training should be preceded by comprehensive ophthalmological and general physical examinations and arrangements should be completed for whatever restoration may be possible immediately or in the foreseeable future before training is begun.

No training or employment is worth the price of an avoidable increased handicap. Any activities or environmental conditions which are likely to aggravate the eye condition of a blind person or any other actual or potential handicapping condition from which he may suffer should be ruled out in advance of any course of training or employment in which he might engage. Many blind persons who retain some usable vision suffer from eye conditions, — such as high myopia, partial detachment of the retina, etc., — which can be aggravated by strenuous or jolting activity. The precautions for cardiacs, asthmatics, and other handicapped persons are standard in the field of rehabilitation generally, but the frequent vulnerability of the partially seeing eye makes it especially important to give unerring attention to the requirements of physical preservation in the training and employment of the blind.

PREVOCATIONAL TRAINING

The type of prevocational training offered under a special program for the blind is primarily training in adjustment to blindness and only incidentally training in the performance of the various industrial operations and other tasks that lend themselves to the accomplishment of the training in adjustment to blindness. For this reason, the general use of a large number of industrial operations in the prevocational training of blind persons is not limited to those blind persons whose vocational objectives lie in industrial employment.

Learning to travel alone represents one of the most important single accomplishments for a blind person. Its importance is both practical and psychological. It removes one of the most formidable barriers to the pursuit of a normal occupational pattern, the going forth to a place of employment rather than being limited to employment that can be brought into the home. Dependence upon guides is seldom satisfactory, as it is often costly and, at best, makes the blind person's attendance at work contingent on the good health, punctuality, and availability of a second person. Beyond its purely practical value, the ability to travel alone emancipates a blind person from the socially limiting and morally depressing necessity of adjusting his movements to the convenience and disposition of members of his family and friends.

Physical orientation and foot travel involve a good deal of sensory training which contributes materially to the general physical competency of a blind person. Developing the ability to localize sound (an ability which is of prime importance in the physical orientation of a blind person), learning to interpret auditory and olfactory cues, developing kinesthetic memory, learning to discriminate texture and contour of terrain and pressure and temperature changes resulting from the presence or absence of large obstacles affecting wind and sun action, developing the co-ordination essential to good equilibrium and prompt response to signs of danger, — all of these accomplishments so essential to the safe and efficient independent travel of a blind person improve his general physical competency. A high degree of physical competency contributes to his sense of independence and self-confidence, and he becomes better equipped, physically and psychologically, to undertake the training of other abilities and the learning of special skills important to his ability to function as a blind person.

VOCATIONAL TESTING

Many standard industrial operations provide the best available means of evaluating and training abilities that constitute important elements in the physical competency of a blind person. A kick press operation, for example, may be used for evaluating and, if necessary, for training hand-food co-ordination; a double solenoid operated machine for evaluating and training bi-manual co-ordination; a small parts assembly operation for finger dexterity; a texture grading or inspecting operation for tactual perception, etc. Industrial operations hold more value for this purpose than do the so-called vocational aptitude tests that are sometimes used for the purpose, although these tests may hold some auxiliary value if used in combination with the industrial operations.

Aside from the virtual impossibility of validating them, vocational aptitude tests[2] have a special limitation in their use with blind persons: the construction and standardization of vocational aptitude tests are predicated on the assumption that vision will be used in their performance. In the absence of usable vision for the performance of a test of bimanual co-ordination, for example, the blind person must depend upon kinesthesis rather than vision to control the movements of his hands. However, as the performance of an aptitude test is too short in its duration to permit kinesthetic learning to take place adequately (kinesthesis, more than any other sense, depending for maximum effectiveness upon extensive practice in each situation in which it operates), the blind person performing a standard test of bimanual co-ordination is working without the benefit of all of the factors that come into play for him in the practical work situation in which bimanual co-ordination is required for success.

The fact that blind persons generally do not perform as well on standard vocational aptitude tests as do seeing persons has led to the establishment of special norms for the blind for some of the tests. However, aside from the fact that this procedure does not eliminate any of the inherent weaknesses of vocational aptitude tests, there is the danger that the reason for the lower performance of blind persons on these tests may not be understood or may be overlooked, and persons concerned in the vocational guidance and employment of the blind may interpret the lower performance as an indication of a lesser capacity in any given blind person than that of seeing persons to perform the work for which he is being tested. This error has sometimes been responsible for disqualifying blind persons as candidates for jobs in which they could function successfully.

The use of standard industrial operations for evaluating specific elements in the physical competency of blind persons not only provides tests of sufficient duration to fairly measure these elements, but also provides the benefit of helping to sustain the subjects' interests in the test by the knowledge that their efforts are producing useful products. Comparison of the performance of any subject of such a test with the performance of other blind persons who have entered various types of employment can provide a usable indication of his rating in the ability for which he is being tested.

The use of standard industrial operations for testing purposes also provides a good setting in which to observe personality traits which are important in the adjustment to blindness and to success in employment: punctuality; initiative; reaction to frustration, monotony, or success; co-operativeness; poise; etc. Other factors that are important in the ability of a blind person to function may be evaluated through the use of simple construction projects: ability to use residual vision in combination with remaining senses, memory for sequences of operations, constructive imagination, reaction and adaptability to noise and vibration (these conditions, in proportion to their intensity, reduce the value of hearing in maintaining physical orientation and, unless orientation can be maintained through the use of memory, fear and accompanying general disco-ordination is likely to result), safety consciousness, time and motion economy consciousness, etc.

Individualized Training Program

Vocational diagnostic programs for blind persons, as they are generally planned, continue for a period of about four weeks. This period of close association with a blind person served under such a program affords opportunity to observe his facial expression, the modulation and projection of his voice, his personal grooming, his table conduct, and other elements in his ability to function which are likely to require special attention because of his blindness.

If the information produced by the vocational diagnosis of a blind person indicates his need for training, an individualized program is planned for him which consists largely of work on operations that require the use of abilities in which he needs strengthening. The exercise which such work affords is frequently combined with a program of corrective therapy. Performance of productive work, because of the interest and motivation which the production lends to the trainee's efforts can be sustained over a considerable length of time but it does not afford the specific, intensive exercise which corrective therapy can provide. On the other hand, the pure exercise of corrective therapy can profitably be continued for only relatively short periods of time. By combining the moderate but sustained exercise of work with the intensive but short-term exercises of corrective therapy, maximum accomplishments in the development of physical competency can generally be realized.

The individualized training program is planned to include, in addition to specific exercises for abilities which need strengthening, several types of training designed to improve ability to handle tools, to improve knowledge of the use of tools and materials, and to develop skills which will hold morale-building value for the trainee himself and the persons whose moral support he values. Projects consistent with the individual trainee's abilities are planned which result in the trainee's being able to take home items that illustrate his accomplishments — end tables, lamps, wood or metal containers, etc. Training is offered in home repair, — replacing sash cords, washers, light fixtures, etc., — in simple automobile maintenance, in simple cooking, and in the performance of a variety of tasks which the trainee can accomplish at home and realize not only the economic advantage of his accomplishment but the value of demonstrating his abilities to those whose welfare is most closely tied up with his progress.

Placement

'Placement' is the term used in the field of work for the blind to identify the process of helping a blind person enter employment and progress in it.

Few, if any, special techniques for placing professional or specialized blind workers have been developed. Placing the blind is essentially a selling job, and the blind person who has professional or specialized skill and knowledge to offer is himself in the best position to sell that skill and knowledge by demonstrating its scope and quality. The placement specialist can do little more than help the blind candidate for professional or specialized employment to obtain interviews with prospective employers who will not be prejudiced by the candidate's blindness.

The assistance which agencies for the blind can offer blind persons to enter and progress in independent business is largely limited in the same way as that which can be offered to professional and specialized blind persons. The operation of concession stands is one type of business in which some agencies for the blind have acquired sufficient experience to offer blind persons substantial, continuing assistance; but those blind persons who enter various other types of businesses can be helped only with financing, with advice from other businessmen, and with other rather incidental assistance.

Blind persons who enter farming are in a position similar to that of blind persons who enter business. A few agencies for the blind have acquired sufficient experience with certain types of farming, — poultry raising, for example, — to offer assistance to blind persons entering such farming; but the assistance which blind persons who enter other types of farming can receive from agencies for the blind is limited in the same way as that which blind persons can receive who enter business other than concession stand operation.

Placement in industrial employment[3] is an area of work in which special and effective techniques have been developed. Commitments are sought from top management of industrial establishments for the employment of limited numbers of blind workers in their respective companies under terms which require that employed blind workers must meet the standard requirements of their jobs, that they must be paid at the same rates at which seeing workers doing the same jobs are paid, and that as long as there exists work in the company which can be performed satisfactorily by blind workers, employment opportunities will be maintained for a specified number of blind workers. In companies where unions are recognized, similar commitments are sought in the form of exemptions from the seniority provisions of the union contracts. Placements are made on the basis of on-the job surveys and demonstrations by placement specialists, usually blind persons, and permanent follow-up is generally maintained to make certain that the blind workers are not transferred to jobs which cannot be successfully performed without vision and that the blind workers are meeting the standard requirements of their jobs.

The provision that employment opportunities be maintained for a specified number of blind workers in a company as long as there exists work in the company which can be performed satisfactorily by blind workers is sought to offset the difficulty which even competent blind workers experience in finding employment because of widespread misconceptions as to the extent of the handicap of blindness, and the consequent general lack of confidence in the feasibility of employing blind workers. It is usually requested that the continuing employment opportunities for the blind under this provision be given to an agency for the blind rather than to particular blind workers in order that the termination of the employment of a blind worker in a particular job for reasons other than blindness will not result in the loss of that job for other blind workers.

The number of blind workers which any company is asked to employ is set not only by the amount of work in the company which can be performed satisfactorily by blind workers but also by the advisability of limiting the employment of blind workers in any company so as to avoid employing two or more blind workers on the same job or in close proximity to each other. The greater the number of blind workers employed on a single job in a company, the greater will be the difficulty of finding suitable work to enable them to continue their employment in the company when the job on which they are employed is interrupted or terminated. In addition, while unions are, ordinarily, very co-operative in granting exemptions from the seniority provisions of their contracts to provide employment opportunities for blind workers, the protection of their interests demands that such exemptions be kept to a minimum. Furthermore, experience has demonstrated that a single blind worker in a group of seeing workers can integrate with the group more easily than can several blind workers together. When two or more blind workers are together, they are likely, initially, to have more interests in common with each other than with the seeing workers, and the companionship which they find in each other is likely to make the seeing workers feel that the blind workers are sufficient unto themselves. This feeling tends to capsulate the blind workers. Therefore, although it is a temptation to place as many blind workers in a company as its management is willing to accept, the rehabilitation of blind persons in industry, — both from the standpoint of their integration with their seeing co-workers and their long-range security, — can be served to best advantage by purposefully and rigidly limiting the number of blind workers who are placed in any one company.

The largest single source of employment for blind persons is found in special workshops for the blind. These workshops should be reserved for blind persons who are unable, because of advanced age, poor health, major secondary disabilities, or other good and sufficient reasons, to engage in fully competitive employment of any type but who can realize substantial psychological and material benefits from engaging in remunerative employment under controlled and especially favorable conditions.

The operation of special workshops for the blind comprises a fairly broad and complex area of specialization in itself. It entails the utilization of the most advanced industrial engineering methods and procedures to provide working conditions, equipment, and worker morale which, in combination with special wage plans and auxiliary medical, social case work, and other services, will enable blind persons of especially limited employability to realize the satisfaction of producing saleable products in worthwhile quantities.

It may be that full clarity and coherence would require more detailed discussion than space has permitted of many of the points commented upon in this chapter. However, if any students exploring the field of work for the blind are motivated by any of our comments to inquire further into the literature on work for the blind or into any programs that operate in the field, this chapter will have served its purpose.

In conclusion, we should like to state that special services for the blind must not be construed as special privileges for the blind but must be understood as constituting the services necessary to make the opportunity of the blind person, as nearly as possible, equal to the opportunity of his seeing counterpart in the community. Acceptance of this point of view, we feel, is essential to the offering of special services for the blind in a manner that will make it possible for them to fulfill their purpose.

FOOTNOTES

1. With minor variations, most public and private agencies for the blind define a blind person as a person whose central visual acuity does not exceed 20/200 in the better eye with correcting lenses, or whose visual field has so contracted that its widest diameter subtends an angle of no greater than 20 degrees.
2. Vocational aptitude tests are instruments designed to indicate the type or area of work in which an individual shows greater promise of success. They should no be confused with vocational selection tests which are instruments designed to select one or more individuals for a given job from among many candidates for the job. Vocational selection tests are used rather widely with fairly good success, and the fact that they are often confused with vocational aptitude tests serves to place more confidence in vocational aptitude tests than the success which has thus far been realized in the use of these tests can justify.
3. 'Industrial employment' as used here does not encompass professional or specialized employment in industry but is limited to the semi-skilled and un-skilled industrial employment at which blind persons are placed through the use of the special techniques that have been developed for the purpose.

CURRENT PROBLEMS IN THE FIELD OF THE BLIND

M. ROBERT BARNETT

The loss of eyesight has never been viewed as a trivial matter, either by the individual who suffers it or by those who are concerned with him. For the great majority of individuals, even until relatively modern times, it has meant uselessness to self and society. For society, it has meant a perplexing economic and social problem, a problem that begets many other problems.

BACKGROUND

Even in the most primitive of prehistoric times, blindness must have been perplexing. The life of the cave-dwelling human was rigorous, and foraging for food in the haunts of ferocious beasts certainly far from child's play. According to conjecture, the blinded person was either killed or died of hunger. This to the gregarious early tribes must have caused some disturbance, but who could add the burden of a helpless neighbor to his own struggle for security?

As prehistoric man emerged into the civilizations of antiquity, and jungles moved back to permit urbanization, mankind began to demonstrate at least the emotion of pity. While there was no concept whatsoever of the right or ability of the blinded to work, at least they were tolerated to exist upon the left-over crumbs. Somewhere through this dawning of history, however, man's superstitious nature, coupled with his belief in and fear of a frightening array of religious concepts, produced for blindness the one overriding problem which has been said to be even greater than physical blindness itself. This is the problem of psychological attitudes toward blindness.

Concepts of blindness as it affected individuals did not change very much for a long time. Basically, society reacted to it with one or both of only two emotions, — pity and fear. Society, therefore, even through the medieval centuries had only the problem of what to do in the physical sense with blind people. Pitying them meant their destruction was to be avoided; fearing them as untouchables certainly ruled out social integration. Since the victims were themselves ignorant of their potential abilities, and since society for many generations was ignorant as well as psychologically blocked, the only service to them conceived in that day was one of simple tolerance to exist on the fringes of life.

The history of the development of education, welfare, and rehabilitation for the handicapped, including the blind, is recited elsewhere in these volumes. The foregoing rather sketchy version is brought into this discussion only to provide an understanding of present-day problems. Blindness among human beings has been known since recorded history began, and yet the earliest efforts to render positive opportunities for growth to blind individuals happened less than three hundred years ago. Somewhere in this world today one can find a stage of civilization — insofar as blindness is concerned — to reflect every stage of growth or lack of it to be found in the history of the race. It may be surprising to learn that in some areas of the world today there still is total neglect of a blind individual. It is stranger yet to discover that even in the most advanced countries today there still is total despair when a mother and father learn their baby is blind.

It is against this background of psychological confusion, incomplete knowledge, inadequate extension of what knowledge does exist, and distorting emotional influences that one must analyze the current problems of this field.

In discussing the following special phases of this topic, the author has attempted to reflect the opinions of all those who have the most experience with service to blind persons. It also should be observed that the outline is limited to the United States, with only oblique references to similar issues in other parts of the world.

SEGREGATION OR INTEGRATION

Edward L. Bernays, well-known public relations expert who has studied many facets of social movement, told the members of the Greater New York Council of Agencies for the Blind at a 1950 meeting that society is just now beginning to emerge from what he called the "asylum era" in its service efforts for the blind. He showed that during the Middle Ages the extent of community understanding was simply to provide shelter for blinded persons in groups set apart, usually in the asylum type of institution. It was in these sheltering institutions that early day leaders discovered and proved the educability of the blind. Deeply impressed with the emptiness of the lives of those who were housed therein, moved by pity and perhaps a vision, individuals began to inject into the institutions modest activities that would help to pass the time.

In the process of relieving the boredom of institutionalized blind persons, their capacity for learning and working became apparent. When a system of touch reading and writing was devised, academic instruction for the young became a reality. General education plus instruction in trades began to have the inevitable result, and the world finally had proof that physical blindness in itself did not bring with it a complete negation of life.

As the twentieth century opened, however, both society in general and the blind themselves still tended to believe that persons who are blind fare better if they are protected from competition in the sighted community. Practical problems of financing and staffing tended to influence the growth of specialized schools and sheltering employment facilities with a strong influence toward the grouping of the blind in colonies. Society was coming to the recognition of a blind person's educability and employability but could not bring itself to conceive of complete social integration of the blind individual. The concept expressed in the old adage that "birds of a feather flock together" seemed to obscure the fact that later began to be evident with all handicapped people, — the blind not excepted, — true rehabilitation means integration into the community in as total a sense as though the individual were not physically disabled.

The paternalistic and sheltering trend on the part of institutions for the schooling of youth and for the employment of adults is still strong in the world. Even in the United States, where the individuality and independence of all people is the keynote, uninformed community leaders still adhere largely to the stereotypes of colonization in their thinking about programs for the blind.

This tendency on the part of uninformed society is unavoidable. Those same practical problems of financing a state-wide education program or of maintaining an adult training program still make the existence of an institution necessary. While it is today recognized and increasingly practiced that a blind child can secure his schooling in the public school nearest his home as a day student, it still is economically impossible for more than 15 per cent to 25 per cent to do so, and the great majority must be provided good education in residential schools. The excellence of such schools in the United States varies considerably, and many of them are underfinanced. The leading educators in this field recognize that the segregation of the child from family and community can have a bad effect upon him unless the school can afford to provide him with a fully rounded program. A large number of schools are achieving that goal. It is to be hoped, however, that more schools and agencies which perform their services in a center-type of institution will improve their community relations and general public relations programs. The thousands of sighted persons not yet confronted with blindness in their families still see the residential institution for the blind as something strongly resembling the asylums of medieval days.

The same analysis of impact upon the public could be made of adult centers, generally dubbed 'lighthouses'. Many of the services needed for the adjustment and training of adult blind persons must be provided in a centralized headquarters. In order to secure the funds with which to maintain such centers, however, those in charge continually bombard the public mind with appeals to the stereotype emotional attitudes about blindness. Specialists in fund raising argue that one cannot get across the fine points of a professional nature but rather that they are forced to use generalized emotional appeals in order to secure response. The existence, therefore, of a building and the public relations campaign to support it still tend to perpetuate the superficial reasoning of the sighted public that blind persons must be institutionalized.

As a result of these paradoxes, one of the greatest problems in social approach to blindness today is found in the controversy over special institutions and agencies as opposed to services to the blind through general institutions and agencies. The problem is equally strong in both the areas of education for blind youth and social or rehabilitation benefits for adults. Idealists argue that emphasis should be placed upon the blind person as an individual, point to his proved normalcy, and suggest that educational, social and rehabilitation programs for either all disabled persons or for the general public can meet his needs most effectively. They argue that the very existence of special schools, special government and private agencies, and special economic security legislation supports the continuation of the concept that blind people are different from all others.

On the contrary side, those who have shown the greatest practical results in education, rehabilitation or economic security for blind persons, point out that the general school or agency actually is not equipped to meet the recognized special needs of blind persons. They argue that since the blind person does present as a rule a greater set of problems to professional personnel, teachers, social workers, and rehabilitation workers will neglect his problems in favor of attention to less complicated cases. They say that the specialized agency, in spite of its reflection of minority interest, must exist in order to promote the integration of the individual blind person into his community.

It is probably apparent that those who adhere to either extreme of these points of view are equally at fault. It is rather evident that the staffs of general community programs cannot at all times understand or cope with those problems which are peculiar to blindness, and supplementary programs of special nature are both desirable and necessary. On the other hand, it is equally fallacious to pretend that all blind persons must secure all of their educational, social or rehabilitation assistance through special agencies and never through the programs of other professional groups. Especially in the adult field, no agency for the blind should seduce itself into thinking that it can be expert and adequate in meeting all of the needs of all the blind of a given community.

Professional Inadequacy

At the outset we stated that acceptance of blindness as something not completely disabling has come about. Techniques for educating blind children, whether in residential schools or in special public school placement, are generally quite effective. No blind child who possesses normal intelligence need grow up without academic and prevocational training. Individuals who lose their sight later can very definitely be helped to make rather speedy and satisfactory adjustment to a modified way of life.

One seldom if ever hears of a suicide motivated by blindness alone, even if most of the advertising which the subject receives feeds the notions about lives of despair and despondency. Blind men woo and wed women, and blind women become wives and mothers, and it is definitely not true that blind people only marry blind people. In almost every trade or profession there are reports to show successful performers who incidentally happen to be blind. No longer do those who are close to it recognize blindness in itself as a barrier to useful and remunerative work. More and more blind persons are demonstrating their ability to move about gracefully, dispelling the story-book stereotype of the groping, faltering figure tap-tap-tapping down the street.

Yes, the Dark Ages attitude about blindness is being contradicted hundreds of times daily by as many individuals who are blind. Whether they each have or have not received direct assistance from some agency or school, the total historically cumulative effort of the specialized agencies can be credited with having produced knowledge which has contributed to these individual success stories.

But what of the other side of the picture? Although in the United States there are about 7,500 children in educational facilities for the blind, rough surveys tend to show that there should be three times that many. Compulsory school attendance laws are supposed to include the blind, but there are numerous evidences that they are not effective. Talking Book services are known and used by 40,000 individuals, but even a conservative and cautious estimate would indicate that twice this number should benefit from one of America's most tangible, practical and most dignified aids to the blind. There are about 20,000 blind individuals at work in general occupations; there should be at least twice that many. Among the estimated 30,000 blind workers who could be employed through sheltered workshops, there are only about 5,000 for whom this specialized employment aid has been provided.

Examples could be detailed to much greater length. Such details, however, would only prove a point which is common to virtually all fields of welfare effort; namely, that the problem is simply a matter of extension of known and established services to greater numbers of those who need it. Extension to the saturation point may never be realized. Even to approach total coverage is going to take a lot of time and money. But in the manner of Americans, inevitably there will be a steady expansion, and though it may be tediously slow at times.

For all of the possible criticisms against public relations which simultaneously hinder and help, the specialized agencies definitely will meet the need for expansion. The better of them will grow in service volume, and the poorly equipped or improperly motivated will fade away. In spite of this optimistic and confident attitude, however, these same agencies will make little or no progress in meeting present-day gaps in knowledge and service unless there is brought to bear upon the total field of blind welfare some rather significant influences in the form of research and experimentation.

This writer would venture to suggest in at least half the cases, even the well-staffed agency for the blind of today is completely frustrated in its efforts to be of practical aid to a blind person. It is unfortunate that our social agency practices of reporting service statistics to governments or contributors do not include reporting failures as well as successes. A great deal more could be learned in short order about the scope of the problem now under discussion.

There are hundreds of blind persons in America today who have unusually fine personal characteristics, but for whom the profession of work for the blind has no answer to the question, "What shall I do?" The question can have a variety of specific references, based on the loneliness of old folks and the socially shy, or on the need for assistance for shopping or for finding an apartment. More consistently baffling, however, are questions from the person who would like "to continue in my present job when my eyes get really bad" or "to get a start when I get out of college", — in short "What shall I do to make a living — to be useful and secure?"

This, then leads us to another anomaly. Individuals with the handicap of blindness need specialized help based upon specialized knowledge, but specialized approach alone often defeats its own purpose. Workers for the blind today are generally experts in their specialty. Their concentration on it, however, has prevented most of them from gaining an understanding of general human problems. Just as an ophthalmologist too often sees the patient as an eye and not as a whole patient, the professional counselor of the blind sees his subject as a blind person and not as an average human being with an additional special problem.

There can be no magic wand with which to sweep away all of the reasons for failures among those who are blind. There is, nevertheless, one generalization possible. It is time that bigger steps are taken in the direction of providing more informed and more qualified personnel — informed and qualified in areas of general human development as well as in the specialty of blindness.

This statement is by no means a case against specialization in work for the blind. If it is a case for anything, it is for a vigorous attack on one of the greatest weaknesses in work for the blind, the lack of adequate numbers of really qualified personnel of all categories. For this discussion, 'qualified' means the possession of a proper basic education in all the fields of learning which bear upon the ills of humanity, and the possession of knowledge gained through study and experience of the best practices found to be helpful in solving problems peculiar to loss of sight.

How can we go about meeting the problem of professional personnel? All progress is the result of educational processes. Further knowledge must be gained through research in specific areas of problems caused by blindness or at least aggravated by it. This knowledge must be passed on through training of basically qualified candidates for professional positions. Eventually, then, the blind themselves will come to see their handicap in its proper light. Ultimately, and ideally, the general public will come to understand; and fundamental psychological barriers of public attitude will fall away.

Guess Work or Knowledge? — Practical Research Goals

It is one thing to point up professional inadequacy, and quite another to suggest solutions. The problems of knowledge versus guesswork in services to the blind are no more easily solved than those that plague all human welfare efforts. With some timidity, therefore, the author presents for the reader an outline of practical research goals which may at least stimulate thought.

Here are some of the specific projects recommended for study. Their mention here does not mean that at least something in these directions has not already been done, but imperfect or half-way measures in dealing with the science of human living should be tolerated no more than those not done at all.

1. *Establishment of a national center for the adjustment of blind persons.* Such a center should concentrate heavily upon practical application of what is known as the 'team approach' to the problem of the individual. I should avoid any pretense of attempting to take care of the welfare of all the blind

in the country. Its principal aim should be to provide agencies and schools for the blind with in-service training for present personnel and with sound candidates for expansion of personnel. If it does not meet that aim, it would be a waste of money and should be abandoned.

2. *A national procedure for more effective training of teachers of blind children.* It does not matter whether the blind children are being taught in a residential environment or in a public school class; the point is that there is a woeful shortage of qualified teachers. True, shortage of teachers is a problem common to all education, but that is no reason for being shy about the needs in this field. Teachers of handicapped children must not only be basically trained, but need also the plus training essential to special education. This field wants what everybody else wants, and then some. Impossible? Not at all! If funds could be made available, a sizeable number of teacher training institutions already are known to be ready and willing to provide special courses. There is a goodly number of potential trainees. Most of them cannot save enough from low salaries to finance the plus training and, therefore, scholarships are all-important. Put the schools and the students together and the result is inevitable — more good teachers to train more well-rounded youngsters to become adults with fewer problems to themselves and to the community.

3. *Establishment of a national center for concentrated attack upon specific types of vocational experimentation.* Occupations for blind girls and women would be high on the list of topics for experimentation and dissemination of information. This would mean that occupations normally thought of as largely filled by women, and which apparently present stone walls to the blind would have priority, at least until the difficulties could be resolved. If an occasional male could benefit from the research and from actual training in the pilot project, so much the better. The center would actually investigate, experiment and teach many specific occupations. But again, its principal aim would be to provide counselors who are qualified to give the blind persons practical guidance for training and placement, and who understand about personality factors, often as vital to success as the basic skill of the trade itself.

4. *Establishment of a national procedure for determination of educability of blind children with other physical handicaps, notably those who are deaf as well as blind.* The total number of such children is small, but their problem is tremendous. Inadequate efforts to date have at least proved that they are educable, and so there are grounds for further efforts. Present methods for determining educability are slow, costly and often totally inconclusive. This problem requires national coordination, although a national center may not be practical. Regional schools for the deaf and for the blind are ready and willing to cooperate, but they need enormous amounts of financial assistance. Oddly, however, this is a field so completely undeveloped that relatively little money could be used at the present time. Even if every deaf-blind child in the country could be subsidized for enrollment there would be a lag of several years before enough therapists and teachers could be trained. But a slow start would be better than none.

5. *Concrete and easy-to-take educational services for all specialists who come in contact with some phase of a blind person's adjustment problem.*

For example, it is almost inevitable that a person struck with an illness or injury that may affect the eyes will consult a medical practitioner. The practitioners freely admit that they are generally uninformed about available resources of a specialized nature in the community, or about existing innovations and aids that make adjustment easier. They admit that sensible instruction for internees and medical students could be acceptable and, if well done, could enable them to contribute toward making blindness a little less staggering to the individual in future generations.

6. *Companion research and pilot projects designed to meet the unique problems of the partially sighted.* Contrary to general opinion, most 'blind' people are not all totally without sight, since statutory definitions are liberal in their description. Individuals with a small percentage of residual vision and those with visual losses of serious degree are often referred to as neither fish nor fowl. Teaching and rehabilitation techniques for the sighted disabled do not apply, and yet members of this group are not proper subjects for treatment as blind persons. Specific areas for research in this field are numerous, but a high priority should be given to development of optical appliances for greater use of remaining vision.

7. *Technological investigation.* This field should not be omitted from a list of this type, even though the ultimate objective has little to do with personality and much more with physiology. An assortment of highly interesting basic experiments already are known in the area of aids to mobility and of devices for reading the printed word. None has been found satisfactory for practical application. These experiments are but indications of the real motivation underlying the activities of technical science. The objective is a substitute for eyesight. It is still only a dream, but with ample financing for recruitment of proper skill, who can say that the combined knowledge of undaunted physiologists and electronics engineers may not make it come true?

8. *Stimulation of many tidbits of research through projects that will carry weight with the public when completed.* Here is one example, with many more available on request. Someone ought to prove to life insurance companies that a man is not necessarily a greater insurance risk simply because he is blind. So far as present superficial studies can show, this is quite without actuarial reason.

There are other examples of worthy projects, but even the abbreviated list presented here is more than American philanthropic interests seem likely to undertake anytime soon. If done well, just those mentioned above could easily cost a million dollars a year for quite a few years.

GOVERNMENTAL AID TO THE BLIND

Throughout this rather cursory examination of problems in current American efforts to meet the needs of blind persons, we have not focused the subject squarely upon the question of public versus private administration of benefits and aids. It is not the purpose of this chapter, however, to speculate upon the philosophy of social administration in general.

It definitely is desirable and necessary, on the other hand, to analyze even briefly the problems which exist in administration of aids and services to the blind through government without exhaustive comparisons with private programs. It has been said that more has been done for the blind through government in America than in any other part of the world. Whether such a generalization is entirely accurate or not, it still is clear that there have been many precedents set, at both state and national level, for recognition of governmental responsibility for certain types of benefits and service programs.

Currently, there are many who have become convinced that while these aids and programs are exceedingly worthwhile, there still is room for improvement. At the time of this writing, there were certain objectives which clearly stand out as their hopes for improvement. Each is taken up here briefly. It should be noted that almost without exception they are directed at Federal rather than state level, a definite reflection of the trend toward nationalization of services. The importance of state participation, however, should not be overlooked, for without effective state laws of a companion nature or efficient plans of administration at state level even the most ambitious Federally legislated program fails to reach the blind residents of every state uniformly and adequately.

1. Perhaps the greatest problem which lends itself to Federal solution is that of economic assistance. It is the greatest simply because a large percentage of persons who are blind are dependent upon society for maintenance. A program of public assistance affects more blind people than any other one measure. The problem also is simply stated, — existing Federal-state public assistance is insufficient in amount of aid to the individual recipient. Further, modern-day theories notwithstanding, its administration still resembles the old-fashioned dole. Certain strides have been made in the recent past toward the removal of demoralizing administrative practices. To carry these steps to their ultimate will inevitably raise the question of whether the blind should be treated differently than other needy people. In this field there are those who advocate removal of the means test altogether, substituting a straight-line plan of 'handicap allowances' to all who are blind. There are those who currently are advocating various plans of disability insurance, generally with the intention that a person who has gained Social Security credits automatically would begin receiving compensation upon loss of sight and in an amount equivalent to his old age pension. It is interesting to note that even in such proposals as the foregoing those who debate the issues usually encounter again the questions of need on the part of the individual. In short, it is clear that the great majority of blind persons need a better program of financial aid than now exists, and it equally is clear that society through government is not prepared to grant sweeping pension plans to the disabled. If any group can secure improvement, it will be the blind. History shows that the pioneering blind lead the way in such matters for others.

2. One of the ever-present problems in national administration is whether there is an effective plan for coordination. First, the present-day picture of Federal services to the blind shows that national responsibility is far from centralized in any one agency. The benefits of services must reach the blind person through a heterogeneous array of Federal and state agencies. In some

instances, a particular service, — braille school books for blind children, for example, — have no direct relationship to other services, but for the most part the blind person is in need of some part of all the services which Congress has indicated should be available to him.

There are those who feel that a blind 'client' is unnecessarily shunted from agency to agency through the referral process which decentralized administration obviously makes necessary. There are those, on the other hand, who do not share the opinion that this is necessarily bad. As with all theories, of course, any of these must be tested through an analysis of the effectiveness in helping the individual.

Three years ago, certain Congressmen drafted a bill which would provide for a thorough study, under Congressional auspices, of the total picture of services for blind persons as they exist under the several Federal statutes and as they are implemented through cooperating state agencies. This bill would have created a special, temporary advisory committee to survey public work for the blind in the United States. For many reasons, the bill did not reach even the stage of committee discussion in Congress. Consequently, the study which it would have implemented still has not been made. No agency, Federal or state, national or local, private or public, expressed anything but support of the measure. Currently, it is hoped that this bill will be reintroduced and passed. In the opinion of this writer, a Congressional study of this general problem can prove of infinite value for future planning of services to the blind.

3. Another current problem influenced by Federal action is that of the preferential right of blind persons to operate businesses on public property. Recent amendments to the Randolph-Sheppard Act, Public Law 732, may help considerably in bringing about a working system of priority for blind persons in the operation of commercial establishments on Federal properties. It is felt, however, that the intent of both the original and the amended law to give blind persons priority will still be somewhat weak because of an unnecessarily complex procedure for application to and permission from authorities in charge of respective properties.

It is realized that this national program, long considered to be one of the finest employment opportunities for blind persons yet provided under our American system, could be over-simplified in its administration and, as a result, lead to a new set of evils. However, if the several Federal departments find that the intricacies of multiple authority bear out the fear that blind persons in general still will not secure this type of employment readily and constructively, then thought should be given to advocating either a new amendment to the present law or an entirely new statute.

Such an amendment or such a law would clearly state that no administrator of any Federal department which owns or has control over Federal property has the legal right to license any individual or agency to operate a concession on that property unless the public agency for the blind in the state in which the building is located has certified that the location is either not needed for employment of blind people or that the type of business required in the structure is not suitable for employment of blind people. Within the organized field of work for the blind, there is not complete agreement with the implications of the foregoing. There are many individuals, most of them blind persons themselves, who consistently object to the element of ownership, control or supervision of such businesses by a state agency. It is one of the perplexing issues of today to determine to what degree handicapped individuals can be given rights to public aid without accompanying supervision by governmental bureaus.

4. It was long ago recognized that the individual states and/or private agencies would find the problem of providing braille and Talking Book literature to blind citizens of each state a rather costly and surely inefficient plan. As a result, our Federal government has endeavored to meet on a national basis the special reading needs of the blind. The numbers of blind persons who currently are benefiting from the braille and Talking Book service program of the United States Library of Congress, especially Talking Books, has grown to approximately 40,000 and continues to show evidence of increase.

Under the language of the law, however, the authority of the administering department extends only to the purchase of such materials and not to their distribution to the individual recipients. As a result, braille and Talking Book literature reaches blind persons through approximately thirty regional libraries, financed either through private solicitation or state appropriation. Present information indicates that the majority are not adequately financed to meet the growing problem.

This present situation is not new; it has been growing for several years. It is also evident that the burden of storage and distribution will become overwhelming in the future. This is a grave problem, and unless some decisive steps are taken on a national basis soon, the entire program for providing reading matter for blind persons may become so riddled with inefficiency and low quality service that even service to small numbers of the total potential of readers will be badly interrupted. Those close to the subject can offer a number of possible solutions. Currently, however, it is has been agreed by those in leadership positions that decisions affecting future planning should be delayed until the rather complex problems involved have been objectively surveyed. The American Foundation for the Blind and the United States Library of Congress have expressed an intention to launch such a study before the end of 1955.

In earlier sections of this chapter, it was stated that the author would attempt to present something of a consensus. It also should have been stated that he would only attempt to bring out all of the problems which possibly could be discovered. Upon reflection, the author is not at all certain that this has been done, and in fact, is quite certain that it has not. Services to the blind are a product of human effort to meet human need, and wiser philosophers than this one would undoubtedly point out that not all problems can always be solved. Without recognition of its ownership, which probably is lost to posterity, we conclude with the following bit of philosophy.

"Of all the problems under the sun,
Some have answers, some have none.
If there is, then find it —
If not, then don't mind it."

INTERNATIONAL SERVICES FOR THE BLIND

ERIC T. BOULTER

One of the most significant and certainly among the most encouraging aspects of work with the blind during recent years has been the progressively increasing extent of international cooperation and worldwide interest towards the development of improved and extended services. In earlier decades, the evolution of new philosophies of educational techniques, vocational opportunities or other areas of service often remained unnoticed by those faced with similar responsibilities in other lands. Happily, the present era has provided us with a far greater opportunity for full interchange of views and experiences, thus allowing the world's blind people to anticipate a more rapid acceleration in the improvement and extension of programs maintained for their welfare. It might be of interest, therefore, if we briefly observe the major events that have occurred during recent years in this all-important area of international activity.

It is recognized that during the early years of the century small scale international conferences had been called, principally in Europe, to study specific problems of common interest, no overt attempt was made, however, to examine the total impact that blindness was making on the social, cultural and economic life of the world until the year 1929, when the League of Nations issued its publication *Report on the Welfare of the Blind in Various Countries.*

The information then revealed was based on replies to questionnaires which the world body had submitted to its member nations. The result was somewhat sketchy, complete and verified information being unavailable in many countries, so that a fully authentic picture of the situation at that time failed to appear. Nevertheless, the report served a useful purpose since, for the first time, it caused many governments and influential voluntary groups to become aware that blindness does pose a considerable social problem. Simultaneously, they were made aware that well organized and adequately financed services can be introduced as a means of minimizing the social handicap. While we applaud the service which the League of Nations thus rendered to our cause, it is to be deplored that more than twenty years were to pass before the government of the world, through a central organization, were to introduce a positive service program on the inter-governmental level.

Prompter action was taken in the area of international voluntary activity. Later in 1929 the International Conference on Braille Music met in Paris for the purpose of compiling a universal manual of braille music notation. Outstanding success was achieved. The manual and keys then developed have remained in effect until today and have served as a boom to blind musicians, music teachers and thousands of sightless individuals seeking recreation and relaxation in music. Later in this article I shall briefly detail the measures most recently agreed upon for modernizing and expanding the 1929 manual.

In 1931 New York City was the site of a most significant international event for those who work with the blind around the globe. The International Conference on Work for the Blind, organized by the American Foundation for the Blind and the American Braille Press for War and Civilian Blind (now American Foundation for Overseas Blind) attracted delegates from thirty-seven countries. A certain number of these countries were represented by counsular and other diplomatic officials who were not fully conversant with the professional subject matter. There was, nevertheless, a distinguished gathering of widely experienced and enthusiastic workers with day-to-day responsibility for the operation of schools, work shops, braille printing houses, and national and local agencies in their respective countries. A comprehensive agenda was discussed, and vitally important resolutions adopted. Many of the decisions then taken remain valid to this date. The conference recognized that its accomplishments had been due in large measure to the fine spirit of cooperation and compromise which had characterized its sessions and resolved that this spirit be maintained through the creation of a World Council on work for the blind. Unfortunately, this laudable intent failed to materialize, due partly, no doubt, to a difference of viewpoint among the delegates as to whether membership in the proposed council should be restricted to organizations composed of blind people or whether membership should equally be open to those groups commonly referred to as 'organizations for the blind.'

In the following year, 1932, discussions held in London were of vital importance to blind people in all English speaking countries. International delegates at the conference table evolved and agreed upon the rules of standard English braille, which settled disputes that had raged between and even within many of the countries concerned.

The tensions of the years which immediately preceded World War II and the subsequent years of conflict caused an understandable but regrettable collapse in international consultation except through the medium of correspondence. However, when peace returned to the continent of Europe, The National Institute for the Blind, (now Royal National Institute for the Blind) in London, and the American Foundation for Overseas Blind in New York began to make plans for international deliberations designed to produce a document which could receive the widest possible recognition as a minimum standard of service which should be made available to blind people in any land. Postwar currency and travel restriction made it necessary that participation in the conference be restricted to delegates from the countries of Europe and North America. Despite such difficulties, however, forty-four delegates from eighteen countries, together with an impressive number of official and unofficial observers, gathered at the conference tables in Oxford, England, in August 1949, for the 10-day International Conference of Workers for the Blind. A series of concise resolutions were adopted which, it was felt, could, when presented in composite form, be fully justified as representing a minimum standard to serve as a springboard for advanced countries and as a target for those areas where work for the blind had achieved a lesser degree of development. Two other factors contributed to the extreme significance of this occasion. First, the United Nations and the United Nations Educational, Scientific and Cultural Organization participated in the conference. The U.N. representative, in addition to presenting a useful paper describing the organization's social affairs program, also promised full support towards gaining international governmental recognition of the conference resolutions. Second, this International Conference, like its predecessor in 1931, recognized the urgency of establishing machinery for continued frequent international collaboration. This view was expressed in the adoption of a resolution which created on a temporary basis, the International Committee for the Welfare of the Blind, charged with three major responsibilities:

1. Obtaining maximum governmental recognition for the adopted program of minimum standards.
2. Urging the expansion of existing services in countries throughout the world through U.N. and governmental action.
3. Bringing into being a permanent consultative organization for international action on the voluntary level.

The international committee approached its tasks with enthusiasm. Its activities in cooperation with governmental officials and members of the U.N. secretariat lead to the endorsement by the U.N. Social Commission and subsequently the General Assembly, of the Oxford resolutions which the world body recommended for ultimate recognition by all its member nations. Simultaneously, the international committee, joining with world groups representing other categories of disability, used its influence towards creating satisfactory machinery within the U.N. for the operation of a substantial program designed to permanently improve the status of the physically handicapped, including the blind, throughout the world.

As a result of these efforts, a conference was convened under U.N. auspices in February, 1950, the meeting being held at the Palais des Nations in Geneva. It was attended by representatives of the U.N. Bureau of Social Affairs, UNESCO, the World Health Organization, the International Labor Organization, the International Refugee Organization, and the U.N. International Children's Emergency Fund. The late Dr. Harold T. Balme served as chairman and as the United Nations' special consultant on the rehabilitation of the disabled. The writer served as United Nations' special consultant on the rehabilitation of the blind. Frank discussion of the many and complicated matters that surround the introduction of a new and specialized service within the orbit or the total U.N. program lead to the evolution of a plan acceptable to all. It called for the creation of a rehabilitation unit within the Bureau of Social Affairs which would serve as a central point for the initiation and coordination of all activities relating to the education, rehabilitation, and general welfare of the handicapped, and for measures designed to prevent or reduce disability regardless of which organ of the U.N. was responsible for detailed administration of any specific program. This plan, to which all the interested specialized agencies and many influential non-governmental organizations subscribed, received the approval of the General Assembly, thus leading to the establishment of the U.N. Rehabilitation Unit in the summer of 1951. It is worthy of note that the first expert appointed to this unit, Mr. Ernst Jorgensen, who was made responsible for creating an international program for the blind, was himself blind.

Within the framework of this U.N. coordinated program, many notable contributions have been made to the worldwide growth of understanding and activity in support of the blind. In the area of prevention, special emphasis has been laid upon trachoma control. WHO and UNICEF doctors, nurses and technicians have campaigned against the disease in several countries of North Africa, the Middle East and the Orient. In West Africa, WHO is now taking practical measures to substantially reduce the future incidents of blindness caused by the dread onchocerciasis (river blindness). The U.N. Technical Assistance Administration, ILO and WHO have teamed to establish in Cairo, an important demonstration center providing a wide range of services to the blind people of the Arab world. In addition to serving a large number of blind Egyptians and serving as a training center for that country's blind welfare workers, the center has received students from seven other countries of the Middle East region. The effectiveness of this pilot program has caused the U.N. and other interested groups to initiate planning with a view to the creation of similar projects in other regions, particularly Southern Asia, the Orient, and Latin America. Many of the world's most authoritative experts have been and continue to be utilized as special U.N. consultants for the purpose of extending 'on the spot' counsel to governments in many countries during the preparation of comprehensive or specialized programs for the blind. More than twenty countries, particularly in underdeveloped areas, have already taken advantage of this service. Carefully selected students from an even greater number of lands have been provided with scholarships and fellowships, ranging in duration from one month to two years, to observe and become proficient in modern techniques in other countries. Considerable quantities of technical equipment, including braille printing plants, have been allocated to support the work of the U.N. consultants or to assist returning students in the development of their programs.

The International Committee for the Welfare of the Blind faithfully pursued its task of creating a permanent organ for consultation and joint action between non-governmental organizations of and for the blind throughout the world. In July, 1951, a meeting was called of all those countries which had been represented at the 1949 Oxford Conference and to which the international committee remained responsible. At this meeting, held in Paris, unanimous agreement was reached concerning the creation of the World Council for the Welfare of the Blind, and a constitution for the new organization was adopted. In due course, legal status under French law was attained through the publication of the constitution in the *Journal Officiel* on August 21, 1951. Membership in the council was, and still is, open to all countries. The size of each national delegation is worked out on a proportional ratio based on the number of the general population in each case. Since the date of its inception, the Council has maintained the closest possible relationship with the coordinated program of the U.N.

The Council now enjoys consultative status with the U.N. Economic and Social Council and with the U.N. Children's Fund. This permits its representatives to freely express their views on all matters which are of direct concern or indirect interest to the world's blind people. Full advantage has been taken of this privilege. Recognizing the value of regular discussion of common problems on both the governmental and non-governmental levels on matters of common interest, two related groups have been created by mutual consent of all concerned. The U.N. Technical Working Group for the Rehabilitation of the Handicapped is composed of official representatives of the U.N. and all those specialized U.N. agencies which are or should be concerned. The Conference of World Organizations Interested in the Handicapped is composed of representatives from those international voluntary organizations which have a direct interest on the subject, and include such groups as World Council for the Welfare of the Blind, International Association for the Prevention of Blindness, International Society for the Welfare of Cripples, League of Red Cross Societies, International Union for Child Welfare, World Veterans Federation, etc. A standing arrangement has been made by which regular meetings of the U.N. Technical Working Group are preceded by meetings of the CWOIH. By this means, full assurance has been gained that the collective views of the voluntary groups will be considered and action speedily taken thereon by the appropriate organs of the U.N. Consecutive conferences of the two groups were held in Geneva in October, 1951, and September, 1954, and in New York in February, 1953. During these meetings many important matters of concern to the blind were discussed, including the preparation of a universally acceptable definition of blindness; a series of resolutions concerning the education of blind youth; the grant of handicap allowances to the blind and other severely handicapped persons; compilation of statistics and assessment of disability; production and distribution of technical appliances; and international programs for prevention of blindness.

In the summer of 1949, UNESCO, at the request of the government of India, accepted responsibility for administering a program designed to achieve maximum uniformity throughout the world in matters of braille usage. A prominent authority on braille questions, Sir Clutha McKenzie, was engaged to serve as braille consultant within the UNESCO secretariat, and a program of activities, particularly in the area of orthographic braille, was mapped out. As a result of decision reached during two preliminary conferences, a group of international braille experts decided in the spring of 1950, to recommend worldwide adoption of the 'same sound — same sign' principle for applying braille symbols to world languages and dialects. During 1951, regional meetings held in Beirut, London, and Montevideo produced agreements designed to terminate long-existing controversies over the allocation of braille symbols for the Perso-Arabic languages, tribal tongues and dialects, and the Spanish-Portuguese languages. In December, 1951, UNESCO decided that continuing supervision of braille questions should be left in the hands of an international committee which was created under the name of World Braille

Council and which has since continued to serve as an advisory group to the Director General of UNESCO.

One of the questions which concerned this Council was that an apparent need existed for effecting some revision to the 1929 braille music manual and for adding sections to the manual so that international rules could be observed for publishing Eastern music in braille and for transcribing braille music copy for certain instruments and purposes which were not in general use in 1929. The World Council for the Welfare of the Blind and the World Braille Council combined forces to sponsor, — with financial assistance from a number of organizations, particularly in the United States, the United Kingdom and Canada, — the International Conference on Braille Music, held in Paris in July, 1954. Attended by braille musicians, teachers, and technicians from nineteen countries of Europe, North and South America, the Middle East, and Asia, this conference achieved its major purpose. Work is now proceeding towards the publication of a revised and considerably extended manual, while experimentation and research in other areas of braille music notation are being pushed ahead.

In 1953, the World Braille Council, recognizing the close relationship between its area of responsibility and that discharged by the World Council for the Welfare of the Blind, requested the latter organization to recognize WBC as its consultative committee on braille questions. The WCWB executive committee approved this suggestion enthusiastically and promised to extend maximum support and encouragement to the work of the new consultative committee. In December, 1954, the member nations of UNESCO at their general conference recognized this relationship and WCWB's overall responsibility for joint non-governmental activity. They therefore transferred to WCWB, through contractual agreement, apparent responsibility for administering World Braille Council affairs. UNESCO's continued interest and participation in the worldwide braille program has, however, been assured through the World Braille Council's continued service as a UNESCO advisory committee.

It was stated earlier that the delegates to the 1949 International Conference of Workers for the Blind considered a wide range of subjects. Limitation of time, regrettably, made it impossible for the conference to give more than token consideration to the all-important area of educational services for the youthful blind. This serious shortcoming was freely recognized and a decision taken to call a representative meeting of educators at the earliest possible moment. The conference further established a committee under the chairmanship of Dr. Gabriel Farrell with responsibility for organizing such a meeting. In August, 1952, the International Conference of Educators of Blind Youth was held at the Institute for the Blind, Bussum, Netherlands, with delegates attending from thirty-two countries. A highly significant series of resolutions was adopted, covering the needs of the pre-school blind child, the additionally handicapped blind child, the average blind child, and the blind child of superior intelligence. Other resolutions dealt with such important subjects as physical education, educational psychology, provision of teaching aids and materials and cooperation between the responsible authority, the parent and the school. These resolutions have been endorsed by the Conference of World Organizations Interested in the Handicapped and forwarded to UNESCO for appropriate action towards persuading all member governments to observe the guiding principles covering the education of the young blind detailed therein. By unanimous consent of the Bussum conference, a continuing executive committee was established, whose major function would be to arrange further international conference at regular intervals. In 1953 the ICEBY, like WBC, also requested the World Council for the Welfare of the Blind to recognize it as a consultative committee. Such recognition has been granted so that complete coordination now exists between the several international voluntary groups which seek to further the wellbeing of the blind.

In August, 1954, the World Council for the Welfare of the Blind held its world assembly in Paris. This represented the first full scale gatherings of its members since the council was legally constituted in 1951. Delegations from thirty-two countries participated in the ten-day assembly, together with observers for the U.N., UNESCO, the International Labor Organization and several prominent international non-governmental organizations. The agenda covered the broad field of prevention, definitions, general and vocational rehabilitation, economic provisions, technical developments, the needs of the multiply handicapped and general welfare services. Particular attention was paid to the development of programs in those countries of Asia, Africa, and Latin America where vast problems exist and progress has hitherto been slow. The resolutions of this assembly have since been favorably received by other international conferences, including CWOIH, U.N. Technical Working Group, and the World Veterans Federation. Among the more important of these resolutions was the adoption, for the first time by a fully-international gathering, of a universal definition of blindness which it is hoped will be recognized in due course by all governments. This alone will represent an important contribution to worldwide endeaver, since it will rationalize the compilation of statistics and ensure the provision of services to those in direct need. During its business sessions the assembly agreed upon a continuing program designed to ensure maximum exchange of information; to promote the study and action on important matters of mutual concern; to encourage official and public recognition of the needs of the blind and the benefits to be derived from adequate services; and to gain maximum cooperation throughout the world to achieve the council's aims. This executive committee, headed by the Council's President, Col. E. A. Baker, is composed of twenty-three members drawn from every continent and region.

The particular problems that confront the blind in under-developed regions may find their solution in programs of regional scope. Encouragement is therefore being given to the promotion of regional status and the growth of cooperation within specific geographical areas to overcome common problems.

The Pan-American Conference on the Welfare of the Blind and the Prevention of Blindness, held in Sao Paulo, Brazil during June, 1954, under the joint auspices of the Fundacao Para o Livro do Cego no Brazil, the Committee for the Welfare of the Blind of the Pan-American Association of Ophthalmology and the American Foundation for Overseas Blind was the first major effort towards that end. Representatives from twelve countries of the Pan-American region attended and pledged themselves to concerted action towards the alleviation of distress suffered by blind people throughout Latin America.

In this age, the only hope for peace and progress in the world lies in the growth of understanding between people whose area of mutual interest is greater than those areas in which misunderstanding and suspicion can exist. It is clearly apparent from the evidence of recent years that blind people across the globe and those who work in their service on the governmental and voluntary levels appreciate this fact. They have given abundant evidence of their desire to promote goodwill and cooperation. Surely it is the responsibility of all who seek the cultural, social and economic liberation of the blind to lend their support. Thus vitalized, the program of international cooperation may serve to open wide horizons of opportunity for the sightless people of future generations.

AGENCIES AND INSTITUTIONS FOR THE BLIND*

American Association of Instructors of the Blind, State School for the Blind and Deaf, Raleigh, N.C.
American Association of Workers for the Blind, 15 W. 16 St. New York 11, N.Y.
American Bible Society, Department for the Blind, 450 Park Ave. New York 22, N.Y.
American Brotherhood for the Blind, 257 S. Spring St., Los Angeles 12, Calif.
American Foundation for the Blind, Inc., 15 W. 16 St., New York 11, N.Y.
American Foundation for Overseas Blind, Inc., 22 W. 17 St., New York 11, N.Y.
American Printing House for the Blind, Inc., 1839 Frankfort Ave., Louisville 6, Ky.
Association of the Junior Leagues of America, Inc., The Waldorf Astoria, 305 Park Ave., New York 22, N.Y.
Blinded Veterans Association, Inc., 2438 18th, St., N.W. Washington 9, D.C.
Braille Circulating Library, 704 West Grace Street, Richmond 20, Va.
Braille Institute of America, Inc., 741 North Vermont Ave., Los Angeles 29, Calif.
Bureau of Public Assistance, Social Security Administration, United States Department of Health, Education, and Welfare, Washington 25, D.C.
Canadian National Institute for the Blind, 186 Beverley St., Toronto, 2B, Ontario, Canada.
Clovernook Printing House for the Blind, 6990 Hamilton Ave., Cincinnati 31, Ohio.
Committee on Statistics of the Blind, 15 W. 16 St., New York 11, N.Y.
E. Matilda Ziegler Foundation for the Blind, Inc., The Matilda Ziegler Magazine for the Blind, Main Street, Monsey, N.Y.
Eastern Conference of Home Teachers of the Blind, 15 W. 16 St., New York 11, N.Y.
Eye-Bank for Sight Restoration, Inc., 210 E. 64 St., New York 21, N. Y.
Guide Dog Foundation for the Blind, Inc., 1 Continental Ave., Forest Hills 75, N.Y.
Guide Dogs for the Blind, Inc., San Rafael, Calif.
Hadley Correspondence School for the Blind, Inc., 620 Lincoln Ave., Winnetka, Ill.
Howe Press of Perkins Institution, 175 N. Beacon St., Watertown 72, Mass.
International Guiding Eyes, Inc., 11408 Collins St., North Hollywood, Calif.
The Jewish Braille Institute of America, Inc., 101 W. 55 St., New York 19, N. Y.
John Milton Society, Inc., 160 Fifth Ave., New York, N.Y.
Leader Dogs for the Blind, 1039 Rochester Rd., Rochester, Mich.
Lions International, Activities for the Blind, 332 S. Michigan Ave., Chicago 4, Ill.
The Library of Congress, Division for the Blind, Washington 25, D.C., 28 distributing Libraries.
National Council of State Agencies for the Blind, 416 Monroe St., Montgomery, Ala.
National Council of State Executives for the Blind, c/o Bureau of the Blind, Providence, R.I.
The National Federation of the Blind, 2652 Shasta Rd., Berkeley 8, Calif.
National Industries for the Blind, Inc., 15 W. 16 St., New York 11, N.Y.

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*A list of agencies for licensing blind persons to operate vending stands in Federal buildings, camps, and vacation homes, City, District and State-wide, private agencies, distributing centers for government-owned Talkingbook Machines; Homes for Adult blind, libraries for the blind, printing and publishing concerns, religious organizations serving the blind and day residential schools for the blind can be found in *Directory of Activities for the Blind in the United States and Canada* (American Foundation for the Blind, Inc.: 15 W. 16 St., N.Y.C., 1954).

AGENCIES AND INSTITUTIONS FOR THE BLIND

National Institute of Neurological Diseases and Blindness, Public Health Service, Washington, D.C.
National Council To Combat Blindness, Inc., 30 Central Park South, New York, N.Y.
National Committee for Recording for the Blind, Inc., 36 W. 44 St., New York, N.Y.
National Society for the Prevention of Blindness, Inc., 1790 Broadway, New York 19, N.Y.
New York Bible Society, 5 E. 48 St., New York 17, N.Y.
Office of Education, Division of Elementary and Secondary Schools; Department of Health Education and Welfare, Washington, D. C.
Pilot Guide Dog Foundation, 31 E. Congress St., Chicago, 5, Ill.
Social Security Administration, Aid to the Blind, Washington, D.C.
The Seeing Eye, Inc., Morristown, N.J.
Veterans Administration, Department of Medicine and Surgery, Washington, D.C.
Volunteers Service for the Blind, Inc., 332 S. 13th St., Philadelphia, 7, Pa.
W. C. Handy Foundation for the Blind, 55 W. 42 St., New York 36, N.Y.
Xavier Society for the Blind, 154 E. 23 St., New York 10, N.Y.
Office of Vocational Rehabilitation Services for the Blind, Dept. of Health, Education and Welfare, Washington, D. C.

LIST OF INSTITUTIONS FOR THE EDUCATION OF THE BLIND IN THE UNITED STATES

Alabama Institute for the Deaf and Blind, Talladega, Ala.
Arizona State School for the Deaf and Blind, P.O. Box 5545, Tucson, Ariz.
Arkansas School for the Blind, 2600 W. Markham St., Little Rock, Ark.
Atlanta Public Schools, Dept. for the Blind, City Hall, Atlanta 3, Ga.
Battle Creek Public Schools, Classes for the Blind, Ann J. Kellogg School, Battle Creek, Mich.
Boston Public Schools, Class for the Blind, John Greenleaf Whittier School, Southern Ave., Dorchester 24, Mass.
Buffalo Board of Education, Classes for the Blind, City Hall, Buffalo 2, N. Y.
California School for the Blind, 3001 Derby St., Berkeley 5, Calif.
Campbell Union School District, Classes for the Blind, 111 N. Third St., Campbell, Calif.
Chicago Public Schools, Dept. for the Blind, Rm. 605, Board of Education, 228 N. LaSalle St., Chicago 1, Ill.
Cincinnati Public Schools, Board of Education, 608 E. McMillan St., Cincinnati 6, Ohio.
Cleveland Public Schools, Dept. for the Blind, 1380 E. Sixth St., Cleveland 14, Ohio.
Colorado School for the Deaf and Blind, Colorada Springs, Colo.
Dade County Board of Public Instruction, Classes for the Blind, 275 N.W. Second St., Miami 36, Fla.
Dallas Independent School District, Classes for the Blind, 3700 Ross Ave., Dallas, Texas.
Dayton Public Schools, Classes for the Blind, 232 N. Main St., Dayton 2, Ohio.
Dearborn Public Schools, Dept. for the Blind, Harvey H. Lowrey School, Jonathan at Haggerty, Dearborn, Mich.
Delaware Commission for the Blind, Dept. of Educ., 305 W. 8th St., Wilmington 1, Del.
Denver Public Schools, Dept. for the Blind, 414 - 14th St., Denver 2, Colo.
Detroit Public Schools, Braille and Sight-Saving Dept., 453 Stimson Ave., Detroit 1, Mich.
Diamond Head School, Classes for the Blind, 3440 Leahi Ave., Honolulu 15, T.H.
District of Columbia Public Schools, Dept. for the Blind, Franklin Adm. Bldg., 15th & K Sts, N.W., Washington 5, D.C.
Duluth Public Schools, Braille and Sight-Saving Dept., 226 N. First Ave., E., Duluth, Minn.
Elizabeth Public Schools, Board of Education, City Hall, Elizabeth, N.J.
Florida School for the Deaf and Blind, St. Augusine, Fla.

Fort Worth Public Schools, Classes for the Blind, Dept. of Special Educ., 1212 Elmwood St., Fort Worth 3, Texas.
Fresno City Schools, Class for the Blind, Adm. Bldg., Fresno, Calif.
Georgia Academy for the Blind, 2895 Vineville Ave., Macon, Ga.
Grand Rapids Public Schools, Braille and Sight-Saving Dept., 143 Bostwick Ave., N.E., Grand Rapids 2, Mich.
Hackensack Public Schools, Class for the Blind, Broadway School, Hackensack, N.J.
Hawthorne School District, Classes for the Blind, Washington School, 319 E. 129th St., Hawthorne, Calif.
Houston Independent School District, Classes for the Blind, 1300 Capitol Ave., Houston, Texas.
Idaho State School for the Deaf and Blind, Gooding, Idaho.
Illinois Braille and Sight-Saving School, Jacksonville, Ill.
Indiana School for the Blind, 7725 College Ave., Indianapolis 20, Ind.
Instituto Loaiza Cordero De Ninos Ciegos, Dept. de Sanidad, Carretera Nueva, Parada 19, Santurce 29, P. R.
Iowa Braille and Sight-Saving School, Vinton, Iowa.
Iowa School for the Deaf, Dept. for the Deaf-Blind, Council Bluffs, Iowa.
Jackson Public Schools, Braille and Sight-Saving Dept., 132 W. Washington Ave., Jackson, Mich.
Jersey City Public Schools, Classes for the Blind, Public School No. 5, 183 Mersellis Ave., Jersey City 4, N.J.
Kansas School for the Blind, 1100 State Ave., Kansas City 2, Kan.
Kentucky School for the Blind, 1867 Frankfort Ave., Louisville 6, Ky.
Lavelle School for the Blind, 221st St. and Paulding Ave., New York 69, N.Y.
Long Beach Public Schools, 715 Locust Ave., Long Beach 13, Calif.
Los Angeles Public Schools:
  Frances Blend Blind and Sight-Saving School, 3232 University Ave., Los Angeles 7, Calif.
  Secondary Blind and Sight-Saving Classes, 124 Loma Dr., Los Angeles, Calif.
Louisiana State School for the Blind, 1120 Government St., Baton Rouge 10, La.
Louisiana State School for Blind Negroes, Southern Br. P.O., Baton Rouge, La.
Maryland School for the Blind, Taylor Ave., Overlea 6, Md.
Michigan Employment Institution for the Blind, Saginaw, Mich.
Michigan School for the Blind, 715 W. Willow St., Lansing 6, Mich.
Milwaukee Public Schools, Dept. for the Blind, 1111 No. 10th St., Milwaukee 1, Wis.
Minneapolis Public Schools, Dept. of Sight Conservation and Braille, Board of Educ., 807 N.E. Broadway, Minneapolis 13, Minn.
Minnesota Braille and Sight-Saving School, Faribault, Minn.
Mississippi School for the Blind, R.F.D. #7, Box 300, Jackson, Miss.
Missouri School for the Blind, 3815 Magnolia Ave., St. Louis 10, Mo.
Montana School for the Deaf and Blind, Great Falls, Mont.
Montclair Public Schools, Dept. for Blind, Hillside School, Montclair, N.J.
Nebraska School for the Blind, Nebraska City, Nebr.
Newark Public Schools, Braille and Sight Conservation Classes, Newton Street School, Newark, N.J.
New Jersey Commission for the Blind, Educational Services, 1060 Broad St., Newark 2, N.J.
New Mexico School for the Visually Handicapped, Alamogordo, N.M.
New Orleans Public Schools, Classes for the Blind, John Dibert School, 4217 Orleans St., New Orleans 19, La.
New York City Public Schools, Bureau for Education of Visually Handicapped, 110 Livingston St., Brooklyn 1, N.Y.
New York Institute for the Education of the Blind, 999 Pelham Parkway, New York 69, N.Y.
New York State School for the Blind, Richmond Ave., Batavia, N.Y.
North Carolina School for the Blind and the Deaf, Ashe Ave., Raleigh, N.C.
North Carolina State Commission for the Blind, Rehabilitation Center, Mansion Park Hotel Bldg., Raleigh, N.C.

North Dakota School for the Blind, Bathgate, N.D.
Oak Hill School, 120 Holcomb St., Hartford 12, Conn.
Ohio State School for the Blind, 5220 N. High St., Worthington, Ohio.
Oklahoma School for the Blind, Muskogee, Okla.
Oklahoma Consolidated Negro Institution, Taft, Okla.
Oregon State School for the Blind, 700 S. Church St., Salem, Ore.
Overbrook School for the Blind, 64th St., and Malvern Ave., Philadelphia 31, Pa.
Paterson Public Schools, Dept. for the Blind, School No. 2, Paterson, N.J.
Perkins Institution and Massachusetts School for the Blind, 175 N. Beacon St., Watertown 72, Mass.
Portland Public Schools, Classes for the Blind, Court School, 2033 N.W. Glisan St., Portland 9, Ore.
Royer-Greaves School for the Blind, S. Valley Road, Paoli, Pa.
Sacramento City Unified School District, Classes for the Blind, P.O. Box 2271, Sacramento 10, Calif.
St. Cloud Public Schools, Dept. for the Blind, St. Cloud, Minn.
San Francisco Unified School District, Classes for the Blind, 135 Van Ness Ave., San Francisco 2, Calif.
San Leandro Unified School District, Class for the Blind, 451 W. Joaquin Ave., San Leandro, Calif.
San Mateo County Public Schools, Braille Class, 538 Jefferson Ave., Redwood City, Calif.
Santa Ana Public Schools, Classes for the Blind, 1528 French Ave., Santa Ana, Calif.
South Carolina School for the Deaf and the Blind, Spartanburg, S.C.
South Dakota School for the Blind, Gary, S.D.
Temple City Unified School District, Classes for the Blind, 9516 E. Longden Ave., Temple City, Calif.
Tennessee School for the Blind, 115 Stewarts Ferry Pike, Nashville 14, Tenn.
Texas School for the Blind, W. 45th St., Austin 5, Texas.
Texas Blind, Deaf and Orphan School, 4105 Bull Creek Road, Austin, Texas.
Utah School for the Deaf and the Blind, 846 - 20th St., Ogden, Utah.
Virginia School for the Deaf and the Blind, Staunton, Va.
Virginia State School, Hampton, Va.
Washington State School for the Blind, 2214 E. 13th St., Vancouver, Wash.
Western Pennsylvania School for Blind Children, 201 Bellefield Ave., Pittsburgh 13, Pa.
West Virginia Schools for the Deaf and the Blind, Romney, W. Va.
West Virginia Schools for Colored Deaf and Blind, Institute, W. Va.
Wisconsin School for the Visually Handicapped, 1900 W. State St., Janesville, Wis.
Youngstown Public Schools, Dept. for the Blind, Rayen School, Ohio and Benita Aves., Youngstown, Ohio.

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SECTION IV

CHAPTER II

THE PARTIALLY SIGHTED

THE PARTIALLY SEEING, BY CLAIRE BURRELL

THE ITINERANT TEACHER PLAN FOR THE EDUCATION OF PARTIALLY SEEING CHILDREN IN ILLINOIS, BY DOROTHY BRYAN

THE PARTIALLY SEEING IN THE REGULAR CLASSROOM, BY DOROTHEA DI PRETORO

VISUAL INSTRUCTION OF THE PARTIALLY SIGHTED, BY ERIC C. RICHARDSON

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE PARTIALLY SEEING

CLAIRE BURRELL

Basic to life in a democracy is the understanding that equitable opportunities must be available if each individual is to develop to his optimum capacity. The school, as an agency of society, is charged with the responsibility of developing programs of education based on the premise that teaching and learning shall be individualized. Attention must be given to the needs of all children. The development of such a program of education designed to give each individual guidance towards the attainment of his ultimate goal has brought about a consideration of the problems involved in the education of partially seeing children, for its has become evident that these children are often the most neglected, especially when considered in terms of their potentialities.

Definition and Classification of the Subject

Before going further with this problem, we must understand what we mean by 'partially seeing'. The term is rather difficult to define since no general definition is universally acceptable. Ophthalmologists do not agree among themselves on what constitutes a partially seeing person. Therefore, for our purposes we shall consider the following groups in the classification 'partially sighted', bearing in mind always that although it is wise to have certain standards of identification, each individual must be considered according to his ability to function, regardless of the nature or degree of his visual defect.

1. Persons having a visual acuity of between 20/70 and 20/100 in the better eye after all medical and optical help has been provided.
2. Persons with serious progressive eye difficulties.
3. Persons suffering from diseases of the eye or diseases of the body that seriously effect vision.

It is, of course, difficult to determine exactly the number of individuals who may be classified as partially seeing. Surveys have been made, however, which would indicate that, on the average, one child in five hundred of the school age population of the United States, or approximately 60,000 children, fall into the category of the partially seeing. The average number of partially seeing adults will, of course, be greater, as both the number and severity of eye defects increase consistently with age.

Since these partially sighted children constitute an important group of individuals in our society, it is the responsibility of the school, in order that this group may function adequately, to provide them with the necessary instruction which will help them to compensate for their handicaps. Any school program for children with severe visual impairments must be so designed as to emphasize not only the normal capacities of these children but also a consideration of their development in terms of a possible compensation for a handicap that they may or may not be able to overcome. Such a program must be planned with the realization that these children have the same needs as the normal child.

Any such program must be considered tentative and must be continually evaluated in the light of experience and changing social conditions.

Partially seeing children are unable to profit from many of the educational opportunities that are provided for the child with normal vision, and educational methods and materials provided for blind students are equally unacceptable. Therefore, it becomes essential that the special needs of these children be considered distinct from the needs of the child with normal vision as well as from those of the child with no vision.

In order to meet the special educational needs of these children, special educational programs have been developed. Certain communities have attempted to solve the problem of providing adequate educational facilities for the group by the establishment of special classes known as 'sight conservation classes' or 'sight saving classes'. In other communities a special teacher is assigned to visit these children in the regular classroom at certain times during each week to give necessary instruction and guidance. However, for a great many no special assistance is being provided and this group must try to get along as best they can either in regular classes with educational programs constructed and administered for the child with normal vision or in institutions for the blind where the educational programs emphasize materials and practices for educating blind children.

Brief History of the Development of Sight Conservation Classes

Educational planning slanted towards the special needs of children with severe visual problems really had its birth in England. In 1908, after prolonged discussion of the advisability of special schools for myopic children, the first class for these pupils was established in London, laying the foundation for the whole British system of these special classes.

Dr. Edward E. Allen, Director of Perkins Institution and Massachusetts School for the Blind, visited England in 1909 to make a study of the education of the blind, and while there became acquainted with the myope schools. Knowing the importance of the problem from his own educational experiences, on his return to the United States Dr. Allen recommended the inauguration of similar provisions not only for highly myopic children, but for those with other serious eye difficulties.

In April, 1913, the first class for the conservation of vision in the United States was established by the Board of Education in the Boston School System. It was placed in a small school building in Roxbury, unoccupied at that time by other children. This arrangement resulted in a segregated group.

In September of the same year, on the recommendation of Robert B. Irwin, then in charge of Braille classes in the public school system of Cleveland, Ohio, the Board of Education of that city established a class for the education of the partially seeing. This was placed in a school building housing regular grades and was conducted as a cooperative project, the children doing all their close eye work in the special classroom provided for them, and all other activities with regular grade pupils. As other school systems organized classes in the United States, these were conducted either on the Massachusetts or on the Ohio plan.

NUMBER OF CLASSES FOR PARTIALLY SEEING CHILDREN BY STATES 1954-55*

State	*Number of Classes*	*State*	*Number of Classes*
ARIZONA	1	NEW HAMPSHIRE	1
ALABAMA	4	NEW JERSEY	17
ARKANSAS	1	NEW MEXICO	3
CALIFORNIA	44	NEW YORK	117
COLORADO	3	NORTH CAROLINA	4
CONNECTICUT	5	NORTH DAKOTA	1
DISTRICT OF COLUMBIA	5	OHIO	61
FLORIDA	13	OKLAHOMA	5
GEORGIA	1	PENNSYLVANIA	35
ILLINOIS	80	RHODE ISLAND	2
INDIANA	9	SOUTH CAROLINA	1
IOWA	6	TENNESSEE	11
KANSAS	1	TEXAS	10
KENTUCKY	11	VIRGINIA	11
LOUISIANA	13	WASHINGTON	8
MAINE	1	WEST VIRGINIA	1
MARYLAND	8	WISCONSIN	11
MASSACHUSETTS	36	TERRITORY OF HAWAII	5
MICHIGAN	53		
MINNESOTA	31	37 states, D.C. & T.H.	639
MISSOURI	9		special classes for partially seeing.

The first sight conservation class in New York City was established in a public school in 1915. Two more classes were opened in July 1917. The Board of Education, feeling that the experiment had been successful, authorized the addition of a larger number of classes. The growth was rapid; in 1921 there were twenty-seven classes and today there are 102 such classes accommodating 1930 children in elementary schools, junior high schools and high schools. The cooperative plan is followed in New York City.

The rapid growth of the sight conservation movement was due to the recognition of Board of Education that these children with borderline vision who could not with comfort read the fine print of textbooks, or who could not see work at the blackboard, in some instances developed serious maladjustments attendant upon visual problems and required medical attention and constant supervision in the care and use of the eyes but that they were profiting greatly from a modified school program with educational materials and procedures adapted for their particular needs.

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*Does not include states where partially seeing children are served only in the regular grades. Approximate total enrollment (in special classes only) - 7450. Includes schools for the blind and parochial schools. Courtesy of the National Society for the Prevention of Blindness.

Facilities for Educating Partially Seeing Children in the United States, District of Columbia and Territory of Hawaii 1954-55

ALABAMA: Birmingham, Talladega
ARIZONA: Phoenix
ARKANSAS: Little Rock
CALIFORNIA: Anaheim, Arcadia, Chino, Compton, Hawthorne, Long Beach, Los Angeles, Oakland, Pacheco, Pasadena, Sacramento, San Diego, San Francisco, San Mateo Co., Stanislaus Co., Temple City, Visalia.
COLORADO: Denver
CONNECTICUT: Hartford, New Haven
DIST. OF COLUMBIA: Washington
FLORIDA: Escambia Co., Ft. Meyers, Jacksonville, Miami, Orlando, St. Petersburg, Tallahassee, Tampa, West Palm Beach
GEORGIA: Atlanta
ILLINOIS: Alton, Aurora, Champaign, Chicago, Chicago Heights, Cicero, Danville, Decatur, East Peoria, East St. Louis, Elgin, Evanston, Freeport, Harrisburg, Jacksonville, Joliet, LaGrange, La Salle, Normal, Oak Park, Ottawa, Pekin, Peoria, Quincy, Rockford, Rock Island, Springfield, Villa Park, Waukegan, West Frankfurt
INDIANA: East Chicago, Fort Wayne, Gary, Indianapolis, South Bend
IOWA: Des Moines, Vinton
KANSAS: Hutchinson, Wichita
KENTUCKY: Covington, Louisville
LOUISIANA: Baton Rouge, New Orleans, Shreveport
MAINE: Portland
MARYLAND: Baltimore, Montgomery Co., Baltimore Co., Prince George County
MASSACHUSETTS: Boston, Hyde Park, Cambridge, Chelsea, Fall River, Lowell, Lynn, Medford, New Bedford, Quincy, Salem, Somerville, Worcester, Watertown
MICHIGAN: Battle Creek, Benton Harbor, Dearborn, Detroit, Escanaba, Ferndale, Flint, Grand Rapids, Hamstramck, Highland Park, Jackson, Kalamazoo, Lansing, Pontiac, Saginaw
MINNESOTA: Chisholm, Coleraine, Duluth, Faribault, Hibbing, Minneapolis, St. Cloud, St. Paul, Virginia, Winona
MISSOURI: Joplin, Kansas City, St. Louis
NEW HAMPSHIRE: Manchester
NEW JERSEY: Camden, Elizabeth, Hackensack, Jersey City, Montclair, Newark, Paterson, Trenton
NEW MEXICO Alamogordo
NEW YORK: Albany, Amityville, Amsterdam, Binghamton, Buffalo, Endicott, Hicksville, Jamestown, Kenmore, Lackawanna, New York City, Niagara Falls, Poughkeepsie, Rochester, Schenectady, Syracuse, Troy, Utica, Yonkers, Mt. Vernon
NO. CAROLINA: Ashville, Greensboro, Winston-Salem
NO. DAKOTA: Bathgate
OHIO: Akron, Alliance, Ashtabula, Barberton, Canton, Chillicothe, Cincinnati, Cleveland, Cleveland Heights, Columbus, Dayton, East Cleveland, Fremont, Hamilton, Hillsboro, Ironton, Lorain, Mansfield, Marietta, Marion, Martins Ferry, Middletown, Newark, Oak Harbor, Portsmouth, Sandusky, Springfield, Steubenville, Toledo, Warren, Youngstown, Zanesville
OKLAHOMA: Midwest City, Oklahoma City, Tulsa, Muskogee
OREGON: (all regular-grade placement)
PENNSYLVANIA: Erie, Farrell, Hazelton, Kingston, Lancaster, Overbrook, Philadelphia, Pittsburgh, Reading, Scranton, Sharon, Wilkes-Barre

RHODE ISLAND: Providence
SOUTH CAROLINA: Charleston
TENNESSEE: Chattanooga, Columbus, Davidson Co., Jackson, Knoxville, Memphis, Nashville, Oak Ridge
TEXAS: Austin, Carrizo Springs, Corpus Christi, Dallas, Fort Worth, Houston, Pasadena
VIRGINIA: Arlington Co., Norfolk, Richmond, Roanoke, Staunton
WASHINGTON: Everett, Seattle, Spokane, Yakima
W. VIRGINIA: Huntington
WISCONSIN: Eau Claire, Green Bay, Kenosha, Madison, Milwaukee, Oshkosh, Stevens Point, Superior, Wausau
WYOMING: (itinerant-teacher plan)
TERRITORY OF HAWAII: Honolulu, Kauaii

Administrative Problems

The primary problem in the education of the partially sighted child is the question of case finding and referral for medical examination. By what procedures is the partially sighted child found and referred to the appropriate class? How adequately do these procedures reach all of the children with visual defects? How adequately do they exclude from special classes the children who do not need to be there?

An adequate and comprehensive procedure for assignment of visually handicapped children to special classes should be based upon a program of eye health for all school children:

1. All new entrants to the schools should be given a vision test as part of the health examination.

2. The vision of all school children should be tested annually. Such testing should be for the purpose of discovering children with deviations from the normal. Classroom teachers can be taught to do this testing satisfactorily, but it is essential that they have special training in the correct techniques and that the testing be done under standard conditions.

3. Children whose visual acuity is less than 20/40 (Snellen measurements) or who are found to have other deviations from normal vision should be referred for ophthalmological examinations. Information regarding directions for administering vision tests can be obtained from the National Society for the Prevention of Blindness.

4. Classroom teachers and school nurses should be constantly alert for symptoms of eye difficulties, such as styes, squints, photophobia, inflammation of the eyes, etc., and such cases should be referred to a treatment agency for examination.

5. A supervising ophthalmologist, certified by the American Board of Ophthalmology, should be assigned to school staffs; his duties include the reviewing of eye reports of all children and the responsibility of making medical recommendations to the school authorities.

6. The vision report, after being received by the supervising ophthalmologist should be sent to the supervisor of classes for the visually handicapped, for the purpose of making a case study to determine such facts as may be pertinent in making a final decision as to school placement. This final decision should be the joint responsibility of the educator and of the ophthalmologist.

Assignment to a sight conservation class should not be made on medical findings alone but should depend upon social and educational factors as well.

7. All of the foregoing procedures are preliminary to the actual classroom managements of the partially sighted child and all are important in providing an adequate background for planning his educational program.

Patterns for Educating the Partially Sighted Child

A number of different educational programs have been initiated to provide adequate education and guidance for partially seeing children.

1. Partially sighted children attend schools and/or classes for the blind. The disadvantages of this type of placement far outweigh the advantages. Partially sighted children are sighted children. The avenue of perceptions is through the eyes. Educational media and methods designed for blind children are not suitable for the child who has sight.

2. Partially sighted children attend segregated classes in the public schools. This type of class placement, although more desirable than placement in a school or class for the blind, results in a type of segregation that is undesirable and not in consonance with what is considered to be the best educational planning for the total growth and development of children, since it is an accepted fact that children learn a great deal from one another. Participation in the group activities of normally seeing children of his own chronological age and development is a very valuable part of a child's education.

3. Partially sighted children attend regular classes in their home communities and are serviced by a travelling teacher. This plan is used in Oakland, California, and is being experimented with in certain other localities, mostly rural and farm areas. Partially sighted children are registered in regular classes in their home communities. A travelling teacher trained in the techniques of educating the partially sighted child serves not only as a consultant to the regular classroom teacher but she also 'coaches' the handicapped child, using sight conservation methods, equipment and supplies. The travelling teacher usually sees the child for one hour each week. The key person in the Travelling Teacher Plan is the regular class teacher. Unless the travelling teacher gains her understanding and cooperation it is doubtful if the plan will succeed.

4. Partially sighted pupils attend a cooperative class program in regular schools. The Cooperative Plan makes provision for a program of education whereby the partially sighted child, although registered in a special class, spends as much time as possible in the regular class with children of normal vision. All work requiring class use of the eyes is done in the special class under the guidance and counselling of an especially trained and qualified teacher. All oral work and socializing activities are taken in the regular classroom. Thus the responsibility of educating the partially sighted child is shared by the regular teacher and the special teacher. Each must work closely with the other. This requires the most careful attention to program making on the part of both teachers in order to avoid duplication and confusion. The burden of leadership here lies on the sight conservation teacher.

PHYSICAL FACILITIES

If possible, the school selected for a sight conservation class should be of modern design, located in a pleasant neighborhood, and convenient to transportation facilities. It is desirable for the school selected to have an out-door playground or to be within walking distance of a public park.

1. *Location*. Second floor usually desirable. Prime consideration — safety of children moving about the building. North or northeast exposure preferred; should receive sunshine part of day.
2. *Size*. At least the size of a regular classroom; however, 1½ units are preferred in order to permit children enough space to move about freely and to utilize to best advantage the materials and equipment.
3. *Windows*. Unilateral — left of pupils. Shades — translucent, double rollers, linen color.
4. *Lighting*. 50 foot candles — fluorescent lighting recommended as it is controlled by photo-electric cell. Light meter essential equipment.
5. *Color Scheme*. Grey-green; grey-blue; dull mottle finish on ceiling, walls, woodwork, chalkboards, desks; color of desks — light (for good reflection value).
6. *Blackboards*. 4 panels, front of room preferred.
7. *Wardrobes*. Individual. Cubicles — individual ones — size for pupils to store books, materials, personal property.
8. *Bookshelves*. Closed — not glass — adjustable shelves.
9. *Sinks*. With soap dispensers — important part of class-room equipment.
10. *Lavatories*. Adjoining classroom.
11. *Storeroom*. Attached to classroom.
12. *Bulletin Boards*. Rear of room and side of room opposite windows.
13. *Electrical Outlets for Talking Books, Tape Records, Radios.*
14. *Other Equipment*. Adjustable desk—seat units with 20 degree tilt top; work table with chairs; kindergarten table and chairs; typewriting table and chairs; book stacks; map rails; filing cabinets; clay containers; raffia containers.

ORIENTATION

When a sight conservation program is introduced into a school it is important that everyone who is in anyway concerned with the social, physical, emotional and intellectual development of these children take an active part in the orientation of the child and his parents to the program.

The problem of coordinating the sight conservation program with the program of the regular school must be met. Meetings between the two groups of teachers should be planned. Every teacher, whether regular or special, who is responsible in any way whatsoever for educating a partially sighted child must be led to know and understand her particular obligations to these children.

The principal of the school is the key person in the success of the sight conservation program. It is his responsibility to foster a good relationship between the regular class teachers and the sight conservation teachers. It is his responsibility to see that each group understands the scope of its responsibility towards the visually handicapped child and to help each group realize the value of its contributions toward helping the visually handicapped children in whose growth and development they each have a share.

It is the principal's responsibility to see that the school community, parent groups, the school medical staff know about the program and cooperate in it.

The social worker also plays a very important part in the orientation of the partially sighted child to the sight conservation program.

Before a partially sighted child is admitted to a sight conservation class the social worker should take certain steps:

1. She makes a complete study of the child's school record, ophthalmological report, personality, home environment, adjustment to handicap, and any other factors pertinent to the determination of special class placement.

2. She visits the home to interpret to the parent the ophthalmological report and to explain to both parent and child the need for transferring the child to the special class.

3. She arranges for any transportation and/or guide service that may be required.

4. She makes arrangements for the parent and child to visit the sight conservation class.

5. She follows up the child and his family by making periodic visits to the home to assist the parents with any problems they are meeting.

6. She acts as liaison between the home and the school.

Before a child is officially admitted to the sight conservation class, the teacher should know certain facts about him, e.g. age, vision record, health record, family history, experience with other groups (in school and out of school), special interests, hobbies, etc., — all information which will influence the adaptation of her program to the individual needs of the particular child. A teacher who has been provided with such information before the pupil is enrolled in her class is better able to arrange for a valuable and profitable session with the parents when they come to enroll the child.

When the parent comes to enroll the child the teacher should be given sufficient time to conduct an unhurried, relaxed interview with the parent. This is an excellent opportunity for parents and teachers to get to know one another and to plan how best to pool their resources so that through their cooperative efforts the happiness and success of the child will be assured.

During this visit is is wise to give the parent and child an opportunity to visit the special class and also the regular class where the child will recite the greater part of the day. It is important for both parent and child to realize that both regular and special teachers share the responsibility for educating these children.

Curricula, Materials and Methods of Instruction For Sight Conservation Classes

The problem of educating the partially sighted child is not that of developing differentiated curricula, but of adapting existing curricula to meet the needs of the individual child. However, the materials of instruction used by partially sighted children differ to some extent from those used by the children with normal sight.

Educational materials for the partialy sighted child are constantly being improved. Large type readers, texts in science, language arts, social studies, health, mathematics and creative arts, are available in 18-24 point type. Funk and Wagnall's *New College Standard Dictionary* and the Winston *Dictionary for Schools* are also published in enlarged type. These texts can be obtained from Stanwix House, Publishers, Pittsburgh, Pennsylvania.

Bulletin typewriters enable the sight conservation pupil to prepare written assignments with minimum eye work. When the touch system is correctly taught and correctly learned, the skill is most helpful in reducing the amount of close eye work.

Maps and globes with little detail, and buff colored paper and soft dark pencils are essential sight conservation equipment.

The Talking Book Machine is an important auditory aid used by sight conservation pupils. The turntable of the Talking Book Machine moves more slowly than that of the ordinary record player. Each record plays for one-half hour, and the reading is done at average speed. Fiction, biographies, plays, etc. are recorded by professional readers. All Talking Books are an exact copy of their printed counterparts. Talking Books for children are often illustrated by sound effects to make the reading more lively and interesting, in the way that pictures do for children with normal sight.

The Tape Recorder is another auditory device which is gaining in importance in the education of the partially sighted as well as in the education of the sighted. Tape Recorders are not only valuable tools, but they are also practical and economical since the tapes can easily be erased and used again and again. Classes equipped with a machine and a basic supply of tapes are able to make and use a large number of recordings in highly flexible ways, e.g. recording of radio programs for future use, providing materials for study, recording broadcasts of historic events, forums, interviews, dramatizations, etc. The tape recorder is very valuable for preserving material to share with other teachers and pupils, thus saving hours of precious time.

The radio, too, is a teaching device of great importance in stimulating and enriching classroom instruction by supplementing the work of the teacher with materials not otherwise available. It also affords these children experiences which improve communication skills and contribute to personal and social growth.

The phonograph, another auditory aid, is used extensively in instructing partially sighted pupils. Many phonographs are equipped for multiple sets of earphones, permitting several pupils to listen while others are engaged in other activities.

These sensory aids do not and cannot replace other proved teaching devices. They are of value only insofar as they enrich instruction.

THE SIGHT CONSERVATION CHILD IN THE REGULAR CLASSROOM

When a sight conservation child is assigned to a class in the regular school program, it is the responsibility of the sight conservation teacher to provide the regular teacher with as much information as possible concerning the visually handicapped child. The special teacher should interpret the ophthalmologist's report on the child to the regular teacher and instruct her as to the best location of the sight conservation child's desk. The special teacher will inform the regular teacher of any privileges the sight conservation child is to have; e.g. walking up to the blackboard, moving his desk so as to get better light, the need for preferential seating in the auditorium, the substitution of oral reports for written, etc. The regular teacher should also be made aware of the special materials and equipment needed by the sight conservation pupil and as to their availability in the special class. No standard set of rules to be followed can be outlined for sight conservation pupils. Each pupil must be programmed according to his eye condition, general physical health, social and emotional growth, and his ability in knowledges and skills.

For example, some children are troubled by light. This is especially true of albinos whose eyes lack sufficient pigment for their protection. These children are, of course, more comfortable in a less bright part of the room.

A child who has a cataract in the center of the lens may also see better away from the bright side of the classroom because the pupil of the eye is larger when the light is less intense.

A child may have normal vision yet have difficulty seeing in the auditorium or at a ball game. These symptoms are often indicative of a disturbance of the muscles of the eye.

The myopic child (near sighted) is usually a good reader and fond of books. He is not eager to join into games. This is easily understandable since, if he cannot see a ball or a bean-bag until it is almost on top of him, he cannot expect to be especially interested in a game of ball. The myope's posture must be watched. Because he enjoys doing close work he is apt to be constantly hunched over his desk or table. For this reason, desks with tops that can be elevated to an angle, and book easels should be provided for these children. It is of utmost importance that the teacher be alerted to any specific recommendations of the ophthalmologists concerning the limitation of physical activities for these children which may result in a detachment of the retina — heavy lifting, jumping, diving, etc.

The hyperopic child is the far-sighted child. This is the child who is apt to become a disciplinary problem; because of his constant efforts to accommodate he becomes tired and restless. It is much easier for him to throw a spitball at Johnny whom he sees clearly across the room than it is for him to keep his attention focused on the printed page on his desk. For this child short periods of close eye work should be planned which are alternated with frequent periods of oral and active work.

The pupil with nystagmus has great difficulty to sustain fixation. He is the child who frequently loses his place when reading and who, because it takes him longer to read a printed page, becomes bored, restless and indifferent. The teacher must know that this child should be allowed a longer time to complete a task, or else some adjustment must be made in the amount of reading required of him.

Many children have vision in one eye only (monocular vision). The regular class teacher should know this and understand that it makes things a little easier if she stands at the side of the pupil where he can see her without twisting uncomfortably. Any physical adjustment that must be made by the pupil in order to see his classmates, his teacher, the blackboard, charts, maps, etc. is fatiguing and often leads to undesirable behavior as a release from tension.

The special teacher and the regular teacher should carefully plan a cooperative program for the individual child based on his individual needs. The sight conservation child participates in the activities of the regular class as far as he is able; oral discussions, reporting, class trips, special plays, programs, and all socializing activities. The special teacher sees that the sight conservation child is well equipped with all necessary tools for a successful period in the regular classroom. i.e., large print books for ready reference, a dictionary, maps, etc. It is the responsibility of the special teacher to see that the sight conservation child has been taught the necessary study skills in order that he can function with comfort and efficiency in the regular room and to see that he requires no more time or attention of the regular teacher than is allotted to any other child in the regular class.

Most of the developmental aspects of the reading and mathematics program are the responsibility of the special teacher. The readiness programs in the early grades are developed in the regular classroom but are supplemented and enriched by the special teacher.

Record Keeping

Since effective guidance is based upon the carefully determined characteristics and needs of the individual, an adequate record of pupil appraisal should be kept.

The progress and devolpment of children in sight conservation classes should be evaluated on the same basis as is the progress and development of children with normal vision. Each child must be considered individually and evaluated according to what can reasonably be expected from him in the light of his mental, physical, social, and emotional development. Such an evaluation should include the following:

Vision Record. A complete record of the pupil's visual history should include date of last eye examination, visual acuity (uncorrected and corrected, diagnosis, prescriptions, pathology if any, oculist's recommendations, e.g., should wear glasses constantly, should wear a patch, should be limited as to physical activities, etc.)

Intelligence Record. It has been found that it is usually not desirable to test partially sighted children by means of the group tests administered to children with normal vision because of the possible difficulties of print, time allotment, and nervous strain.

Partially sighted children should be tested on an individual basis. The Stanford-Revision of the Binet is found to be practicable for testing sight conservation pupils. These tests should be administered by a trained psychologist. The minimum standard of admission to a sight conservation class should be 75% I.Q.

Academic Ability, and Achievement, and Aptitudes. Perhaps it is fortunate that few standardized achievement tests are available for measuring the academic ability of our visually handicapped pupils. When standardized achievement tests are used, teachers are inclined to concentrate their efforts on the skills and knowledges which are appraised by such tests. While standardized tests are the most objective mental measurements we now have, it does not necessarily follow that all other methods are entirely subjective.

Teacher-made tests can be constructed which give consideration to the needs, the abilities, and to the recent experiences of particular children. These tests have great value in determining to what extent short-term goals have been attained.

Children should keep individual progress envelopes as a means of helping them to evaluate their own growth. In this envelope are kept samples of work of all kinds. From time to time the material in this envelope should be studied, by the child with his teacher, so as to determine in what areas the child shows progress, as well as to discover where improvement can be made.

Records of special abilities and disabilities. Anecdotal records should be kept. During the course of a school year the teacher should note behavior patterns which are indicative of a child's social, emotional, physical, or moral development. On the basis of these notations a functional guidance program can be developed.

Art work and manual work produced by the child should be analyzed both as to the ideas expressed and the techniques of expression used.

Productions which cannot be preserved such as oral communication, dramatizations, achievement in music, etc. should be analyzed and notations made regarding the analysis.

Each child's stage of development should be gauged by such evidence as his willingness to explain and discuss what he has painted, constructed or written; his confidence in joining with the children of normal vision in their study and play activities; his ability to lead and follow; by the spirit in which he accepts criticism; and his willingness to approach new ventures.

Other Data. The record file of each child should also contain data concerning his physical health, socio-economic background, family relations, agencies to which the child is known, as well as reports on conferences held with the parents and others who are interested in the child's welfare.

All such data gathered should be passed on from one grade level to the next higher level and from one school level to the next higher level. In this way a very significant file showing the growth of the pupil is accumulated.

THE GUIDANCE COUNSELOR'S ROLE

A program for visually handicapped pupils should make provision for counseling and guidance by a trained counselor who is familiar with the needs and abilities of these children.

While is it true that the classroom teacher is usually the key person in any guidance program, there are occasions when she feels the need of specialized help.

The guidance counselor in his contacts with teachers emphasizes the mental hygiene aspect in the classroom situation. Partially sighted children have the same feelings, drives, and emotions as other children, and it is important for teachers and counselors not to confuse emotional problems growing out of the handicap with those stemming from school, family and other environmental factors. It is important for both the teacher and the counselor to discover whether or not the basic reason for disturbance is traceable to causes other than defective vision, and to recognize that all aspects of the total picture must be considered if the child's problem is to be solved adequately.

Carefully planned articulation procedures bridging the gap from one school level to another are an integral part of any guidance program for visually handicapped pupils. It is wise to have an articulation card, containing essential information concerning the child, precede the child to the next higher school in order that the best possible program can be planned for him in accordance with his visual and other needs. The guidance couselor should not restrict his services entirely to pupils in sight conservation classes, but should extend his services, when necessary, to pupils in regular classes who, although they have a visual defect, do not meet the requirements for special class placement.

A special function of the guidance counselor should be the follow-up of pupils formerly in classes for the visually handicapped who, for one reason or another, have been discharged to regular classes. It is entirely possible, especially in large city school systems, that the teacher of the regular class will be unaware of the needs of these children. The pupil is frequently reluctant to reveal his handicap in a new environment, and as a result he finds himself in need of help. The counselor visits the school, discusses the pupils needs with the grade advisor or the principal and arranges for any necessary modifications in materials or programming. In every case the importance of the pupil's participation to the fullest extent in all activities insofar as his handicap will permit must be emphasized.

Another facet of the guidance counselor's work is to keep teachers alerted to the most recent publications in the field of guidance of the partially sighted, — books, pamphlets, guidance films, etc.

The guidance counselor's duties should also include plans for the follow-up of all graduates from sight conservation classes. A knowledge of the degree to which partially sighted people succeed or fail in achieving vocational success is extremely helpful in planning future curricula and programs of education and guidance, and serves to keep the educational and vocational planning of all partially sighted pupils in line with current practices and policies in industry. At times it may become necesssary for the guidance counselor to orient employers to the acceptance of the fact that very often partially sighted persons can function as satisfactorily as the normally sighted.

Supervision of A Sight Conservation Program

A cooperative form of supervision between school principals and the supervisor of a community's sight conservation program can be worked out with satisfactory results, the principal giving the same type of supervision to these classes as is given to the regular classes with the exception of that part of the program that deals with the special provision for this group. This supervision of special services should be furnished by a supervisor in charge of the special program and should consist of:

1. Organizing classes
2. Assigning pupils to sight conservation classes
3. Transferring pupils from the sight conservation program to the regular class
4. Arranging for special equipment and teaching materials
5. Arranging for group and individual conferences with teachers regarding the special work of these children
6. Arranging for the care of special problems arising from visual difficulties through the services of a social worker and guidance counselor
7. Arranging for payment of carfare and guide.

Teachers in the regular classroom program have little knowledge of the specific problems which relate to the needs of the partially sighted child. Since these teachers share the responsibility for educating these children, it is incumbent upon supervisors to plan for in-service training programs for such teachers. Such a program should include plans for instruction in vision testing; a study of methods for the detection and care of eye disorders; an acquaintance with the work of the eye clinic; methods in adjusting and modifying curricula and programs; materials and equipment for partially sighted children; and information concerning literature related to the needs of these pupils.

DISCHARGE FROM A SIGHT CONSERVATION CLASS

The procedure for discharge from a sight conservation class should be no less definite than the enrollment procedure and should provide for consideration of all the factors involved.

Provision should be made for periodic re-examination of eyes to determine whether children are in need of continued special assignments and whether they are progressing satisfactorily. Reclassifications should be made whenever, in the judgment of all concerned, a more satisfactory adjustment can be made.

Provision should therefore be made for a review of each child's progress at least once a year to determine whether any modifications in his course of study or type of class placement are needed. Continuation in a sighted conservation class should not be automatic, but should result from a consideration of all the physical, social, and educational factors involved in the situation.

SUMMARY

It is important that candidates for sight conservation placement be identified as early as possible in order that those children who are not able to profit sufficiently by the visual approach to learning, may be provided with the necessary educational facilities which will assure for them an education which is at least as good as the education they would receive if they had normal vision. Fortunately, most children with visual defects can function adequately in the regular class and school program. For those whose vision loss is very great, special sight conservation classes should be established.

In sight conservation classes the program is integrated with the program of the regular school; the children attend regular classes for all studies in which they are able to function visually; for other studies they receive individual attention in the special sight conservation room from specially qualified teachers under the best possible physical conditions. This plan prevents segregation and over-protection and brings about an emotional and social adjustment that assists the child to become an accepted and contributing member in school and community activities. It is essential that the safeguarding of the whole program of sight conservation and the qualifications for proper placement be clearly understood and adhered to.

A sight conservation program must provide a classroom where a specially trained and qualified teacher and special equipment and methods enable partially sighted children to live and learn as normally and as free from strain as possible. It must be understood that sight conservation classes are not for behavior problems, socially or emotionally maladjusted children, or for children of retarded mentality.

Whether partially sighted children are in special or regular classes it is important that attention be focused on their individual needs. They must be provided with an environment and experiences which will develop their potentialities for fine personal and social adjustment. Many of these potentialities can be met in any class group which is under the guidance of a teacher who is sensitive to the needs of all children and who understands how children grow and develop. Others, however, are very difficult to realize in the usual school situation unless special provision is made. Provision for the development of partially sighted children is very difficult in ordinary classrooms unless teachers are especially alert to the needs of partially sighted children.

The success of the program is dependent upon the interested cooperation and understanding of all concerned with the total development of these children.

Sight conservation classes fill a very definite need in our educational programs.

THE ITINERANT TEACHER PLAN FOR THE EDUCATION OF PARTIALLY SEEING CHILDREN IN ILLINOIS*

DOROTHY BRYAN

Since partially seeing children are basically "seeing" persons, they should be educated and prepared for life in a seeing society. This is best accomplished when the child can be kept in public school and in contact with the usual problems of living.

The educational needs of these children can be met in a variety of ways. The problems peculiar to the locality as well as to the individual child should be considered in the choice of program.

In the *traditional class plan* children are enrolled in a special room where the teacher arranges their program and schedules part of their work in the regular grades. In the *regular class plan* children are enrolled in the regular classroom and, whenever the teacher decides that they need additional help, they use a special resource center supervised by a trained teacher. Details for the establishment of such class plans may be found in the State Circular *Children With Visual Problems.*

The *itinerant teacher* or *contact plan* which will be described here takes the special help a partially seeing child needs to him rather than taking him to the service. The child is enrolled in his regular grade in the school nearest to his home. He benefits from the cooperative effort of the classroom teacher and itinerant teacher working and planning together to meet his needs. In and out of school he associates with the children from his own neighborhood. Emphasis is not placed on his differences and, as a result, he has an opportunity to develop naturally and to become a well adjusted, active and participating member of his community.

This plan which has proved quite successful in some urban districts may, if properly established and administered, meet the needs in rural areas, since there are seldom enough partially seeing children in a small community

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to justify the establishment of a special class or resource room; and daily transportation of children for such a program would not usually be feasible owing to the great distances involved.

Responsibility for Service

The contact plan is a cooperative one under which several school districts may work together. It is necessary for each district to recognize certain essential responsibilities. Employing an itinerant teacher should be the responsibility of one district even though the service will be spread into several others. This administrative or base district works out a plan to receive from other districts their share of the expense of tuition, and of other items essential to a unified plan. The cooperation of all agencies and individuals interested in the welfare of children is needed in planning for them; for example, the county superintendent of schools, public health nurses and representatives of local agencies and service clubs will be working with the local schools.

Financial Arrangements

To be eligible for state reimbursement a school district must meet the standards of an approved program. This includes the provisions that the special teacher meet the minimum qualifications for certification. In the itinerant teacher plan the state reimburses for the salary of the special teacher to the same amount that a teacher with equal training and experience would receive on the regular salary schedule for teachers in the district. The district files a copy of its salary schedule with its annual claim for reimbursement. If it does not have an official salary schedule, it submits a copy of its payroll. No differential in salary to the special teacher is included in the claim. A district desiring to pay a salary differential assumes full responsibility for it.

The cooperating districts work out a plan for prorating both the cost of supplies and equipment needed to carry on the program and the travel expenses of the teacher.

Qualifications of the Teacher

The same qualifications are needed for an itinerant teacher as for the one working in a special class plan. In addition to her professional training there are certain essential personal qualities to be considered. She should have maturity, tact and poise. She needs a background of varied experiences and teaching in regular grades. In most cases she will need an orientation to the secondary school program, as well as the elementary one. Her general and mental health must be good and it is very important that she have good vision.

Locating the Children

Before a program can be established it is necessary to make a survey to discover all the partially seeing children in the area who should receive service. Each child should meet the standards of eligibility set by the state. Psychological examinations will be necessary where there is doubt that any child meets the "sound mind" clause in the law.

A spot map indicating location of the children will be needed to determine the number an itinerant teacher can serve and to work out her schedule.

Office and Storage Space

The administrative school district provides centrally located office space for the itinerant teacher and necessary equipment such as desk, file cabinet, large-type typewriter, office supplies, etc., as well as a telephone or accessibility to one. In conjunction with this there must be adequate storage space for supplies and equipment such as large-type dictionary and textbooks, magnifying devices, large-type typewriters, easels, maps, etc.

In each school building she must be provided with work space: for example, a small room that is used on other days by the school nurse, speech correctionist or visiting social counselor. Such space should be lighted adequately and afford privacy for working with the children or conferring with school personnel, parents and others.

Determining the Case Load

The case load will depend upon a number of factors. Geographical distribution will determine the amount of travel involved. Cause distribution, visual acuity level, near acuity, type size feasible for each child and the organization plan of the various schools will all need to be considered. The Division of Special Education of the Department of Public Instruction should be consulted to determine the case load on an individual basis. During the initial period of adjustment it is usually desirable for the teacher to visit each child at least once a week. Some children may need to be visited two or three times a week. After this period some may get along very well when visited only once or twice a month. Where there is more than one child in a school there will be times when arrangements can be made for group work. In most situations a teacher can work satisfactorily and individually with as many as 30 children.

Ocular records must be completed before a child is eligible for this service and they should be in the hands of the special teacher if she is to know how to plan her work. It is her responsibility to see that the child is re-examined at the proper time; that he learns how to take the proper care of his glasses if he uses glasses; that he learns proper eye hygiene and how to use his vision to the best advantage without harming it. She will call upon the oculist to plan with him in the best interest of the child and to interpret the school program to him. She will work with the school nurse and the family as well as the child in regard to these functions.

Work Schedules

To eliminate waste in time and mileage the spot map should be used in planning the schedule of regular visits to the various schools. Most junior and senior high school programs are departmentalized and the special teacher will want to visit children in these schools during their free periods or regular study periods instead of at a time scheduled for a subject matter class. Therefore she should plan this part of her schedule first, then fit the work with the elementary school children into the time that is left. It is desirable to maintain as fixed a schedule as possible, keeping it sufficiently flexible to allow for changes within the school's program and extra time needed for special work with an individual child. Her schedule should be made available to the main office of the administrative district and to each school in which she works so that she may be located easily if need arises. When a change in plans occurs, she should notify the main office and the next school she is to visit. Upon arrival at a school she should first check in at the office of the principal and also check out before leaving so that she may be located easily at all times.

Prior to beginning the year's work all the classroom teachers should be oriented to the program and the role of the special teacher. They should feel free to call upon her for help in obtaining good visual environment in their rooms, for explanation of the eye condition of any child even though he may not be classified as partially seeing, and for consultant service for the child with multiple handicaps. They should know enough of her work to have consideration for her time schedule and still use her help.

The special teacher should arrange her work so that she is available to classroom teachers or others for a conference period at set times each week. Certain periods should be scheduled after the close of the school day to provide for the teachers coming from a distance. It will prove more satisfactory in most programs of this type to hold such conference periods in the office of the special teacher since it will be centrally located.

Time allowance should be made for the special teacher to work with the school nurse, the psychologist, and the school librarian. The latter will help to choose supplementary books in type of 12 point or larger, and will make up a card catalogue of these according to subject, author and title, with the approximate grade level of each noted. Also, a subject index file should be compiled, giving the major topical classifications in each book so that information on a given subject can be obtained more easily.

Before beginning actual work with children, time should be spent with each classroom teacher who has a partially seeing child in her group. She will need to know what she can do and how the special teacher can help her. The special teacher will need to visit the regular class at first to observe the child in his classroom setting, to see how he fits into the group, to determine the reaction of the other children to him, to note the special equipment he will need and the manner in which the teacher carries on her program. With this information the special teacher can help the classroom teacher in seating the child properly, in scheduling his work so that eye rest periods alternate with those of eye use, and in planning areas of work in which he must have restricted participation, such as limited physical activity for the child with high myopia. By establishing a cooperative working relationship with the classroom teacher she will receive full information about the child's progress, and will know the areas in which he needs her special help.

At least a week in advance all material which a particular child will need in large type or large form should be turned over to the special teacher so that she can obtain or prepare it for him. This is her responsibility and it may necessitate a vast amount of library research, transcribing by hand, by typewriter with large type, or duplicating machine. She also obtains suitable magnification devices for those children who can profit from their use. At the junior and senior high school level she arranges for student readers when needed.

The special teacher should spend some time teaching typing to the older children who will have the most use for it. In the initial stages of this her supervision will be needed more often than at a later date. Provision of typing and study space is important. This may be in the same room where the child works with the special teacher or elsewhere under the quiet conditions.

Equipment and Supplies

The special teacher should build up a repository of materials in the designated storage space, keep a complete inventory and approve all requisitions for special supplies and equipment. In planning, it should be remembered that under the itinerant teacher program there may not be need for all the equipment used a class plan.

Records and Reports

The classroom teacher keeps the same records for the partially seeing child as she does for all others. The special teacher is responsible for all records relative to the division of special education. These include, as previously stated, the ocular records, a case study with a running report, samples of the child's work to show progress, etc. The special teacher should be sure to make known to the classroom teacher the pertinent facts in these records and should give her duplicates of any which will be of help in working with the child.

The special teacher turns in to the superintendent of schools and to each principal a monthly schedule and a summary of her work, and a final report at the end of the year. Copies of these are filed in her own office to be reviewed by the Division of Special Education along with the case records of all children receiving service.

Counseling and Vocational Planning

Programs for the child going from elementary to high school, and counseling on the personal problems related to his handicap are the responsibility of the special teacher. This help is needed especially by older children who are more sensitive to feelings of difference about their eye conditions. Vocational counseling should be carried on with the aid of the people trained in that field.

Home-School Cooperation

The special teacher may wish to visit the home to interpret the need for eye care and to assist the parents in establishing a desirable home study situation for the child. She should confer with the school nurse and the regular teacher about the home situation beforehand so that there is a complete understanding on the part of each as to the purpose of the visits.

Community Responsibility

Since the special teacher acts as a visual consultant for the schools and since there is always need for interesting and educating the general public to the needs of exceptional children, she may be called upon to work with community agencies and organizations. This may entail evening meetings, giving talks, preparing articles for publication, and working with the newspapers and radio.

THE PARTIALLY SEEING IN THE REGULAR CLASSROOM*

DOROTHEA DI PRETORO

In discussing the rôle of the partially seeing child in the regular grade, consideration must be given to a number of preliminary factors. It is most important that a study be made of the child, his handicap, abilities, interests, limitations and home environment. The recommendations of the ophthalmologist and the relationships of the school personnel also require consideration before a visually handicapped child is placed in the regular grade.

Some people question the advisability of permitting a partially seeing child to spend part of the school day in a grade room when crippled children and mentally retarded children must remain in their special rooms all day. It is quite obvious that crippled children who use specifically constructed furniture cannot function with any degree of comfort in a regular classroom. Mentally retarded children are unable to compete with pupils of their own age and would meet with repeated failures in a grade room, thus adding to their difficulties. The partially seeing child, however, can take part in the regular grade program for part of the school day without discomfort and with considerable benefit to his emotional and social development. As a full-time student in a regular grade, he would soon become a problem.

The policy of the coordinated program for visually handicapped children was initiated in the sight-saving class in Cleveland in 1913 by Dr. Robert Irwin. The National Society for the Prevention of Blindness studied this plan and wholeheartedly endorsed it. With Mrs. Winifred Hathaway as a pioneer missionary for the National Society for the Prevention of Blindness, the policy has been quite universally adopted, and great credit is due them for their untiring efforts in the interests of children with poor vision.

Furthermore, the foresight shown by the pioneers in this field has taken root in the general program of education. The trend today is against segregation of children and decidedly in favor of individual instruction according to the abilities, maturation, achievement levels, and interests of the individual.

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*Used by special permission of The National Society for the Prevention of Blindness and of the author, then Acting Director of the Board of Education for Visually Handicapped, Board of Education, New York City.

There are certain benefits provided for the visually handicapped child by his attendance in a regular classroom. He receives an opportunity to obtain various viewpoints, wholesome competition where he can attain some degree of success, social development at his own age level, independence in the absence of his special teacher and a feeling of belonging to a group. These benefits all aid in meeting the basic needs of the partially seeing child, and tend to emphasize his potentialities and minimize the limitations of his handicap.

The Sight Conservation Teacher

In effecting the grade placement of a visually handicapped child, the teacher of the special class is the key figure. She must have a knowledge of eye diseases and their implications in order to provide a suitable program for eye hygiene for the children and to interpret to the grade teacher the recommendations of the ophthalmologist. She should investigate the home conditions, study the child's school and health records, discover his interests and administer diagnostic tests to determine the level of achievement.

She should be familiar with the special services which might be needed, such as psychological, psychiatric, medical, educational, recreational and vocational. Specialists in these various fields can be most helpful to the sight conservation teacher in planning a school program for the visually handicapped child.

The duties of the sight conservation teacher include care of the eyes, teaching all subjects which require intensive eye work, typewriting on the Bulletin (large print) typewriter, selecting and enlarging material which is not available in large print books, teaching suitable arts and crafts, obtaining companions to serve as readers, explaining eye hygiene program to the grade teacher and keeping records of the child's school progress and medical reports.

Principal

The principal of the school plays a very important part in planning the grade placement for a partially seeing child. He should have a sympathetic understanding of the work, and a knowledge of the aims to lay the groundwork for the success of a coordinated program. He should acquaint the grade teachers with the plan before assigning the partially seeing children to their classes. As an illustration of a carefully planned Junior High School program which has proved successful, excerpts from a school circular, issued by the principal, read as follows:

"The program for the new sight conservation class in our school calls for your cooperation.

"The sight conservation pupils will be placed in regular classes to travel with the classes and take to all the work with the exceptions noted.

"1. Need I suggest that your first duty is to welcome these pupils and to give them a copy of the class program promptly?

"2. The pupil is to be regarded as a regular member of the class with which he is traveling. Miss J will assume all clerical responsibility concerning the pupils including attendance.

"3. The sight conservation pupils are to return to Room 409 when the regular class attends the following periods. Note well, no pupils of the sight conservation class may attend these periods: sewing, millinery, physical training, drawing.

"4. The pupil is to be seated in the front, center of the room. Please check with child re adjustment in seat and permit change of seat, if necessary.

"5. The pupil is to be permitted to leave the room and return to Room 409 whenever the class is assigned a study lesson requiring reading from a text.

"6. Please send two copies of the texts you use to Miss J, Room 409. She will gradually type in large print copies of the book as the lessons progress. If you give her information re lessons in advance she will try to have them ready for the lesson.

"7. The same procedure of #6 holds true for all tests.

"8. Miss J will help the pupils as far as possible with the homework assignments. The pupils are not to be required to do additional work of any nature at home.

"9. Miss J will at all times be ready to cooperate and follow up any suggestions you may make for the good of the pupils.

"We realize that this arrangement gives you additional work and increases your registers but we know you will be helpful to the handicapped pupils who are unfortunate enough to need special help."

This circular letter defined clearly the responsibilities of the grade teacher, the pupils and the sight conservation teacher and was instrumental in setting up an excellent sight conservation program in the school.

REGULAR GRADE TEACHER

The teacher of the grade can be most helpful to the visually handicapped children and the special teacher by carrying out the instructions provided by the principal. She should try to include the handicapped child in all activities and treat him as a member of the class. She should assign the child to a seat near the blackboard and in a well-lighted part of the room to prevent undue strain on the eyes. She should confer with the special teacher if any problems related to the handicapped child arise. The two teachers, working together, can help the partially seeing child obtain the same educational opportunities which are offered to normally sighted pupils and at the same time provide means of conserving vision.

THE PARTIALLY SEEING CHILD IN THE REGULAR GRADE

The special teacher instructs the child to follow his grade program. He enters the grade room quietly and on time and equipped for the lesson and leaves when the lesson is finished or if the lesson requires close eye work. He participates in oral and dictated work. He comes with his assignments which were prepared in the special classroom. He takes materials from his special room to supplement the work of the grade, such as outline or clay maps, a large-print book related to the lesson or suitable pictures or drawings. Being a contributor to the regular grade develops the feeling of belonging to the group and tends to make the group accept the child.

Children in the lower grades spend about one third of the day in the regular classroom while the children in the upper grades spend more than half of their time with normally sighted classmates. Curriculum changes in recent years make it difficult to prescribe exactly how much time the handicapped child should spend in the regular grade but it is important that work involving the use of the eyes should be done in the special classroom. The vast amount of research done by children in the regular grades today indicates that the partially seeing child must obtain his assignment in the special classroom where he has the materials and equipment best suited to his needs.

The effectiveness of placing the partially seeing child in the regular grade has been noted in numerous cases. The wholesome development of the child has been achieved and the eyes have been given all possible protection.

The success of the sight conservation program is acclaimed in the following note recently received from a principal:

> "Bernard used to be a truant and a problem case. He is now a good student. I attribute this metamorphosis largely to the program in our sight conservation class."

Conclusion

Grade placement for visually handicapped children is important since it offers some compensation for the frustrations, rejections, lack of security and other psychological problems due to the handicap. To achieve the maximum benefit from the sight conservation program, it is necessary for the sight conservation teacher to coordinate the services of experts in the medical, educational and vocational fields, who can work as a team, providing guidance for the educational and emotional and social development of the partially seeing child.

VISUAL INSTRUCTION OF THE PARTIALLY SIGHTED

ERIC C. RICHARDSON

The methods of teaching blind children, successfully used for a long time, have not proved entirely satisfactory for teaching those children who are not quite blind, but who still possess some useful vision. This problem has evoked considerable thought and discussion of late, as children who do not have sufficient vision to be educated in most public schools are admitted to institutions for the education of the blind.

It has been felt by many who have studied the problem that the child with poor sight should be encouraged to use all his vision to learn to read and write and to acquire as much education as possible by sighted means, even aided by magnifying devices.

Frequently we encounter a partially sighted child who is unable to read, even though his vision is adequate to do so. This is usually because he has never been taught to read print, but has been subjected at a school for the blind, to methods of instruction which did not include visual reading. At times the only instruction that such a child has had in reading has been gained outside the school, usually at home. This state of affairs has been built up over the years, largely by the fear on the part of the parents and teachers of 'straining' or over-taxing the eyes of the child, who because of his poor vision has long been the subject of adult sympathy. The medical profession has also fostered this idea, and many schools for the blind have followed the custom of encouraging pupils to 'save their eyes' by not using them, and to gain education by other means.

The fact is, however, that in the majority of instances, the eye condition which accounts for the child's poor vision is stationary, and full use of such eyes will not cause them to deteriorate. Full use of the eyes of normally sighted children is not harmful to their vision, and after all, vision is a variable quantity. Some of us see better than others.

A blind or partially sighted child possesses the unlimited curiosity characteristic of all children, and concentrates this curiosity on objects which are nearby, those which he can feel, rather than on some distant object, of which he has never been aware. If the child has some useful vision, it is natural for him to make every effort to see objects which are within his reach. He will peer intently at them, as closely as possible, and if he is older, he will use magnification to see more distinctly. Thus it has been the experience of teachers, and all others familiar with the problem, that it is harder to teach a partially sighted child to read braille with facility than it is to teach a child who is completely blind. The child with some vision seems to lack the urgent need and the concentration to apply himself to this admittedly difficult task, and if he is at all able, he will try to read braille with his eyes, thus defeating the whole purpose of his instruction in this useful medium. As a matter of fact, to expect an active, intelligent child with useful vision to accept methods of instruction based largely on hearing and on touch is unrealistic.

At the New York Institute for the Education of the Blind the enrollment includes a large group of children who have greatly reduced vision. Their visual acuity varies from the perception of light, to distance vision of 20/200 (Snellen measurements) which is the upper limit of the legal definition of blindness. Children who have as much as 20/200 vision move around confidently among familiar surroundings, and they often have surprisingly good vision for objects near at hand, some being able to read quite small print for a short time.

There are a number of ocular conditions which often make it impossible to correct the vision of a child by ordinary lenses to better than 20/200 for distance, but which still may allow him to have useful vision for near. Among eye diseases which may be responsible for this type of ocular defect are albinism, nystagmus, excessive myopia, and partial optic nerve atrophy.

In the visual instruction of partially sighted children, the chief stress, to date, has been on improving their vision for reading. This is simple magnification, enlarging the apparent size of the print, and is a very different problem for that of attempting to improve distance vision, which can only be done by means of a telescope. All magnification, whether for distance or for near, makes the object viewed appear larger, but correspondingly reduces the area which may be visualized. Thus the greater the amount of magnification, the smaller is the visual field which may be clearly seen.

There are several things which can be done to aid a child with poor vision to read better. When those children who are excessively myopic remove their nearsighted glasses and then hold the print close to their eyes, they see small details more clearly. If they have no appreciable amount of astigmatism, they may continue to do this with comfort for sometime. The great majority of students, however, will need lenses which magnify the size of the print. The type of magnifying lens selected depends largely on the child's individual needs. The simplest are strong plus lenses of eight, ten or up to twenty or more dioptres, which of course are added to the individual refractive need. Great magnification is better supplied by a system of lenses containing air spaces, which makes for lightness 'and improves the field of clear vision. Examples of such lenses are those of Bechtold and of Feinbloom. Telescopic spectacles, adjusted for close reading, are also of value in many cases. Hand-held magnifying lenses are less satisfactory, as they are difficult to use, and do not allow the child free use of his hands. Lately a device called a 'megascope' has become available through the American Foundation for the Blind;

it greatly magnifies printed material and allows for reading at a more comfortable distance. This appears to be a very ingenious, and useful instrument, and something like it may come in to more common use in teaching partially sighted children to read.

No attempt has been made to improve the distance vision of partially sighted children, so that as a group they may be instructed visually from charts, or from the blackboard. This would require each child to be fitted with a telescopic type of lens, which hardly seems to be practical. The possibilities of projecting a picture or printed matter on a screen, and thereby greatly enlarging it, has greater possibilities. Such projectors, now in common use for scientific demonstrations, may well be adapted for classroom work in this connection.

The partially sighted child has been under the care of eye physicians, or clinics, before he appears at a school for the education of the blind. Their reports, usually available, are taken into consideration, when the new pupil undergoes his initial eye examination at the school. As complete an eye examination as is possible should be done, which, of course, depends on the student's age, intelligence, and cooperation. This examination, if at all possible, should include refraction, and the plotting of the visual fields, as well as a careful funduscopic study after the child's pupils have been well dilated.

Each child who has an eye condition which is nonprogressive, and who has distant vision of about 10/200 (Snellen measurements) with ordinary lenses, should be tested to determine the smallest sized print which he can easily recognize. If the child is able to read print of newspaper size or a little larger, with magnifying lenses, his vision should be sufficient for him to be educated, at least partly, by sighted means. On the other hand if the child cannot be made to see even large sized type, then it is obvious that he will have to be educated as a 'blind' child, even though his peripheral vision is sufficient to allow him to move around without difficulty. The crux of the problem is the child's ability to see detail; and to do this, even with magnification, he must have good central vision. This depends on a good macular area in the retina, and reasonably clear media, cornea, crystalline lens, and vitreous. The child employing magnifying glasses for his school work should have his eyes examined at least every three months during the school term, as vision occasionally deteriorates, not from using the eyes, but from the naturally progressive nature of some eye diseases. If this happens, the students program must be altered to conform to his ability to see. The teacher and the school nurse are always on the lookout for any abrupt change in the child's vision, and they are in a position to bring this to the attention of the school physician.

Improvement is frequent, and is usually seen when a young child becomes more secure, and accustomed to his surroundings. This may be an actual visual improvement, customary in most children as they get older, or merely the result of greater familiarity with printed matter.

It requires close cooperation between the ophthalmologist and those other members of the school faculty who are familiar with the children's personalities to select students who should be instructed visually. In addition to having the necessary vision, the child must be of average intelligence, enthusiastic and eager to learn, and willing to accept the obvious limitations of special magnifying glasses. It must be borne in mind that with such lenses, the child has to hold print uncomfortably close, and naturally he has a very restricted range in which the print can be clearly seen. This is tiring and exasperating, and taxes the child's attention, and his willingness to continue. Frequent rest periods are necessary.

The small number of students with comparable vision and ability to learn, and the same educational level, makes it necessary to give each child individual instruction, and requires great ingenuity, and patience on the part of the teacher.

A school in which partially sighted children are being educated visually, together with children who are entirely blind, adds to the problems of administration. In addition to providing efficient teachers, classrooms with special lighting are needed, and generally text books with larger than usual clear black type are necessary.

All the children in such a school should live together and associate freely, to avoid any distinctions, or cliques, based on varying visual ability.

AGENCIES AND PERIODICALS FOR THE PARTIALLY SEEING

AGENCIES FOR THE PARTIALLY SEEING

General Electric Company, Nela Park, Cleveland, Ohio. For lighting information.
International Council for Exceptional Children, 1201 16th St., Washington, D.C.
National Education Association, 1201 16th St., N.W., Washington, D.C.
National Society for the Prevention of Blindness, 1790 Broadway, New York, N.Y.
National Society for Crippled Children and Adults, 11 S. La Salle St., Chicago, Ill.
U.S. Dept. of Health, Education and Welfare, Office of Education, Children's Bureau, Office of Vocational Rehabilitation, U.S. Public Health Service, Washington, D.C.
Westinghouse Electric and Manufacturing Co., Lamp Division, Bloomfield, N.J. For lighting information.

LIST OF PERIODICALS FOR THE PARTIALLY SEEING

American Journal of Ophthalmology, Ophthalmic Publishing Co., 664 N. Michigan Ave., Chicago, Ill.
American Journal of Public Health, American Public Health Assn., 1790 Broadway, New York City.
Better Light Better Sight News, Better Light Better Sight Bureau, 420 Lexington Ave., New York City.
Exceptional Children, Journal of the International Council for Exceptional Children, 1201 16th St., Washington, D.C.
Illuminating Engineering, Illuminating Engineering Society, 1860 Broadway, New York City.
Magazine of Light, Lamp Dept., General Electric Co., Nela Park, Cleveland, Ohio.
Outlook for the Blind, American Foundation for the Blind, 15 West 16th St., New York City.
International Journal for the Education of the Blind, 1867 Frankfort Ave., Louisville, Kentucky.
Optical Journal and Review of Optometry, Chilton Co., Inc., Chestnut and 56th St., Philadelphia, Pa.
Sight Saving Review, National Society for the Prevention of Blindness, 1790 Broadway, New York City.
Today's Health, American Medical Assn., 535 North Dearborn St., Chicago, Ill.

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SECTION IV

CHAPTER III

THE DEAF

THE DEAF, BY LEONARD M. ELSTAD

CHALLENGES OF THE PRESENT TIME TO THE EDUCATORS OF THE DEAF, BY POWRIE VAUX DOCTOR

TOWARDS A NEW UNDERSTANDING OF THE DEAF CHILD, BY HELMER R. MYKLEBUST

EVALUATING THE INTELLIGENCE OF THE DEAF, BY GEORGE LAVOS

A MODERN DAY SCHOOL PROGRAM FOR TEACHERS OF THE DEAF, BY HARRIET S. McLAUGHLIN

COUNSELING THE DEAFENED, BY IRVING S. FUSFELD

BASIC PREPARATION FOR TEACHERS OF THE DEAF, BY IRVING S. FUSFELD

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AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE DEAF

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Definition and Classification

What is a deaf person? There have been many attempts to define him. Usually the best source of information is those who work with him. A special committee of the Conference of Executives of American Schools for the Deaf, after a two-year study, stated:

> Because of general use and misunderstanding, because of the desire of the profession to lessen the possibility of confusion, and because the terms are obsolete and are not commonly used by experienced educators, it is strongly recommended as part of this report that the following terms no longer be considered in our terminology; deaf-mute, deaf and dumb, semi-mute, semi-deaf, and mute. Furthermore, in the same way, the term 'deafened,' which has been used to designate the hard of hearing, has confused many and has been used by individuals to mean the deaf. The term is not needed; it is superfluous and confusing, and acts as a protection to certain advertising agencies to the detriment of the deaf.

Finally, these definitions are proposed:

1. The Deaf: Those in whom the sense of hearing is non-functional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of the loss of hearing.
   a) The congenitally deaf—those who were born deaf.
   b) The adventitiously deaf—those who were born with normal hearing but in whom the sense of hearing became non-functional later through illness or accident.
2. The Hard of Hearing: Those in whom the sense of hearing, although defective, is functional with or without a hearing aid.[1]

The above definitions are clear and to the point. However, many persons with no apparent hearing at all can speech read so well that they are sometimes classified as hard of hearing. Technically, they are deaf. Practically, they conduct themselves as hard-of-hearing persons. Others who might be scientifically classified as hard-of-hearing persons are to all intents and purposes deaf, because they are poor speech readers and have poor speech. Between these two extremes fall thousands of individuals with varying degrees of residual hearing. Are they deaf or are they hard of hearing? This chapter deals with those who cannot hear the spoken voice, may or may not be good speech readers, may or may not resort to the manual means of communication, may or may not mingle only with hearing persons, may or may not be happier with deaf friends; in short, with those who because of an acoustical handicap, regardless of the degree of the hearing level, require special training and aptitudes to carry on the usual endeavors of human beings in a world of sound.

INCIDENCE OF DEAFNESS

It is difficult to estimate the number of deaf persons in the United States. No national survey has been made of the actual incidence of deafness, though spot checks have been made from time to time.

Dr. Harry Best, in 1943 reached the following conclusion:

> The deaf do not constitute a large element in the population of the United States. Their number may be regarded as somewhat under one hundred thousand. This means that there is approximately one to every twenty-five hundred of general population. The deaf are thus pretty much lost in the general mass of people. By many they are rarely seen, much less intimately known in their lives; in the public mind there is little place for them. The deaf are the least numerous of the so-called "defective" classes.[2]

On this basis there would be 66,000 deaf persons in the United States today. More recent estimates have suggested one to every 1,000 of general population, or 165,000. Much depends upon who are considered deaf and who are considered to have hearing enough to be classed as hard-of-hearing persons.

In the nation we have approximately 32,000,000 children of school age. One estimate of 0.1 per cent of the total school population listed as deaf seems to be a reasonable one. The January issue of the *American Annals of the Deaf*, 1954, gives the total number in schools and classes for the deaf as 22,100. If we accept 0.1 as the percentage, we get 32,000 children who can be classified as deaf. Part of the difference between these two figures can be ascribed to the difficulty of getting accurate reports of day classes in the nation. Part of it may be due to the fact that there are waiting lists in the various schools for the deaf. Then again, many children placed in regular classes for hearing children belong properly in classes for the deaf. These factors could easily account for the discrepancy in the above given estimates.

HISTORY

The dark ages for the deaf child and his education continued century after century until the 16th Century. Early history records that a physician in Italy by the name of Pietro de Castro did some work in this field in 1540. Another by the name of Cordano from Padua emphasized in several of his writings the use of writing and the teaching of speech to deaf children. He also developed a manual alphabet, one of the first attempts at manual expression. Another Italian, Giovanni Bonifacio of Venice, in 1616 wrote regarding the use of the language of signs and the teaching of speech to the deaf. In 1670 Padre Francesco Lan Luzi published a work on articulation.

The first effective instruction of deaf children has been credited to Spain. As early as 1555 Pedro Ponce de Leon, of the Order of St. Benedict, taught deaf children in the Convent of San Salvador de Ona at Valladolid. He used oral methods. His pupils are reported to have mastered Latin, Greek and astrology. In 1620 Juan Pablo Bonet taught several pupils, stressing writing, and also the use of a language of signs.

Charles Michel de l'Epee is considered by many to have contributed the most among early educators of the deaf. He founded the first regular school, using oral methods at first, but later changing largely to the language of signs. In 1791 his school was taken over by the State. It was his successor Abbe Sicard, who invited Thomas Hopkins Galluadet to visit his school in Paris.

The first American deaf child to receive a formal education, as far as we know, was John Bolling, son of Major Thomas Bolling of Cobbs, Chesterfield County, Virginia. This boy was sent across to the Braidwood School in Edinburgh, Scotland, in 1771. He died soon after his return to the United States, in 1773. His brother and sister, also deaf, were sent to the same school. However, it was actually after 1800 that definite progress was made in the instruction of deaf children in this country.

Col. William Bolling, the hearing brother of the Bolling children, and Francis Green from Boston, who had a deaf son, both tried to establish a school for the deaf in the United States. Francis Green was a man of learning. Because of his Tory leanings he was obliged to leave the country during the Revolution. While in England he visited the Braidwood school and later wrote about the work he saw there. Mr. Green also visited the school in Paris operated by de L'Epee. Upon his return to the United States, he continued his writings on the education of the deaf, pleading for a school for them in this country. He made a survey of the number of deaf children in Massachusetts. He also estimated there were 500 deaf children of school age in this country. Mr. Green died in 1809 without realizing his dream of establishing a school for deaf children.

In 1807 the Rev. John Stafford worked with a group of deaf children in an almshouse in New York, but soon abandoned his effort. He maintained his interest in deaf children, however, and was one of those who later helped found the New York School for the Deaf in 1818.

Following these sporadic efforts, Col. William Bolling established the first school for the deaf in this country. His two children, William Albert and Mary, were the first to be formally educated under trained instructors in the United States. Colonel Bolling prevailed upon John Braidwood, grandson of the founder of the Edinburgh School, to be the teacher in the new school for the deaf in Baltimore, in 1812. Because of our war with England at that time, it was necessary to secure special permission for Braidwood to remain in this country.

Early in 1816 Braidwood became involved in personality difficulties and fled to the North. He did not return until 1817. Another class was started, this time in cooperation with the Rev. John Kirkpatrick of Manchester, Virginia. There was an agreement that Braidwood instruct Kirkpatrick in the art of teaching the deaf. It was not long until Kirkpatrick broke off relationships with Braidwood and carried on the work of the school alone. In 1819 the school was moved to Cumberland County, Virginia. Kirkpatrick became the first trained teacher of the deaf in this country. Unfortunately, the school did not flourish.

At this time Thomas Hopkins Gallaudet became very much interested in a little deaf child, Alice Cogswell, the daughter of Dr. Mason Cogswell, a neighbor of the Gallaudet family. Mr. Gallaudet studied some of the works of Abbe Sicard and with this help made an effort to teach simple words and sentences to the young deaf child. A group of Dr. Cogswell's friends raised money with which to send Mr. Gallaudet to England and the Continent to learn about the education of the deaf. He was 28 years of age when he sailed from New York for London. His reception in England certainly left much to be desired. Most educators of the deaf there were pledged to maintain secrecy in their work; they proposed to Mr. Gallaudet that he bind himself for three years at a very small salary, after which time he would be permitted to engage in the instruction of the deaf in America.

While in England, Gallaudet had the fine experience of meeting the Abbe Sicard, who was at that time in charge of a school for the deaf in Paris, founded by de L'Eppe. The Abbe Sicard invited young Gallaudet to visit this school in Paris. Because of his disappointments in England and Scotland, where he had spent almost nine months in patient endeavor, Gallaudet accepted the invitation. He was welcomed by the Abbe Sicard and given every opportunity to learn about the education of the deaf. He visited classes and was given private lessons. After three months he set sail for America, taking with him a deaf teacher from the Paris school, by the name of Laurent Clerc, who later assisted Gallaudet in establishing the school for the deaf in Hartford, Connecticut.

Gallaudet's friends had not been idle while he was away. In May, 1816, an Act of Incorporation had been obtained from the legislature of the State of Connecticut for the establishment of a school for the deaf. Funds in the amount of $17,000 were collected. Because of his intelligence and ability to meet the public, young Clerc assisted greatly in the raising of these funds and helped demonstrate that the deaf could be educated. The school was officially opened on the 15th of April, 1817. The following year a successful appeal for assistance was made before Congress by Mr. Clerc and 23,000 acres of wild land, which later was sold for more than $300,000, was given for an endowment to the new school in Hartford.

Thomas Hopkins Gallaudet remained for a number of years as head of the school. His was a very difficult assignment. He was not given full management by the directors, but he had the happy faculty of overlooking this difficulty. Because he had enthusiasm and a sincere desire to aid the deaf, he was able to firmly establish the free education of the deaf in this country.

The New York Institution for the Deaf was established in 1818, and the Pennsylvania Institution for the Deaf in 1820. One by one, other states established residential schools for the deaf, some with private funds and others with state funds. A free education became available to all deaf children in this young nation from that time on.

From 1817 to 1867, the first fifty years of free education, 24 State residential schools were established; these are still in existence. From 1867 to 1917, the second fifty-year period, all the other residential schools were established, the last in Hawaii in 1914. There were no more until a second residential school was established in California in 1954 at Riverside. Only Delaware, Nevada, and New Hampshire do not have state supported residential schools for deaf children at this time. These states provide funds for educating their deaf children in neighboring state schools and in public school classes. The value of buildings and grounds in these 80 residential schools throughout the nation is most encouraging. The average cost per pupil within the last fiscal year was just under $1,500.

The first of the 10 public day schools operating today in the United States was established in 1869. This is the Horace Mann School in Boston. Others followed in 1878, 1893, 1897, 1899, 1908, 1913, 1918, 1921, and they are still operating. The latest is in California at Hyde Park, Los Angeles, started in 1953.

Day classes for the deaf have been formed and disbanded with great frequency. Of those operating in 1954, the founding dates are spread as follows: 2 from 1869 to 1879; 3 from 1880 to 1890; 10 from 1891 to 1900; 10 from 1901 to 1910; 24 from 1911 to 1920; 32 from 1921 to 1930; 17 from 1931 to 1940; 43 from 1941 to 1950; and 21 from 1951 to 1953. The 1920's witnessed a real surge in day school history. The 1940's saw a similar expansion in day school interest, and it is reasonable to assume that in the 1950's there will be a similar growth in the number of day schools. The main cause for concern in this activity is the size of the classes, the variation in ages in the classes, and the difficulty one teacher has in teaching so much to so many children of all ages. We have gotten away from the one-room country schoolhouse and must not make such provisions for deaf children. That danger is always possible in the one-room, one-teacher, small-class arrangement.

The history of the private and denominational school for the deaf in the United States does not indicate the possibility of any great expansion. The first was established in 1837. From that year until 1937, one hundred years later, only 15 schools were established that still operate. From 1937 to 1953, others have come into being and still operate. Several of these are conducted by the Catholic Church, and two by the Missouri Lutheran Synod.

It is recommended that those interested in schools for the deaf refer to the annual January issue of the *American Annals of the Deaf*, with editorial offices at Gallaudet College, Washington, D.C. Complete information is available on all schools and classes currently being conducted.

Two names that stand out in bold relief as early educators of the deaf are those of Dr. Alexander Graham Bell and Dr. Edward Miner Gallaudet. As long ago as 1867, the year in which the oral schools at Northampton, Massachusetts, and in New York City were begun, and when there was no articulation teaching anywhere else in America, Dr. Gallaudet recommended to the board of directors of his institution, in his tenth annual report,

> that instruction in speech and lipreading be entered upon at as early a day as possible; that all pupils be afforded opportunities of engaging in this until it plainly appears that success is unlikely to crown their efforts; that with those who evince facility in oral exercises, instruction shall be continued during their entire residence in the institution.[3]

In the following year, a Conference of Principals was held in Washington, D.C., on Dr. Gallaudet's invitation, and it was chiefly through his persuasive arguments that the heads of American schools were lead to pass a resolution offered by him that "it is the duty of all institutions for the education of the deaf to provide edequate means for imparting instruction in articulation and lipreading."[4]

In 1886 Dr. Gallaudet wrote the "Gallaudet Resolutions," one of which is incorporated in part in the constitution of the American Association to Promote the Teaching of Speech to the Deaf, "that earnest and persistent endeavors should be made in every school for the deaf to teach every pupil to speak and read from the lips." As far back as 1867, therefore, Dr. Edward Miner Gallaudet was interested in the use of articulation in the education of the deaf. Dr. Alexander Graham Bell was interested in this same project, and at the Eleventh Quadrennial Convention of Instructors of the Deaf in 1886, the resolutions that Dr. Gallaudet drew up were adopted. It can be seen, then, that these two great educators of the deaf were agreed in this important step in the education of the deaf child.

It is noteworthy to report that the school Thomas Hopkins Gallaudet started in 1817 was instrumental in establishing the *American Annals of the Deaf*. "This publication first came out in November, 1847. According to the Reference and Bibliography Division of the Library of Congress, it is the oldest periodical of its kind in the educational field."[5] It continued to come out from this fine school until 1868, when the editorial office was moved to Gallaudet College.

> The education of the deaf has been termed the most completely documented of all special fields of education. This documentation includes 107 years of the *Annals*, proceedings of organizations such as the Convention of American Instructors of the Deaf and the Conference of Executives of American Schools for the Deaf, the *Volta Review*, and a quite considerable and as yet unclassified mass of material reposing in files of the school papers, or 'Little Paper Family'.[6]

The *Volta Review*, mentioned in the foregoing paragraph, was first published in 1899 as the *Association Review*. That periodical is the official organ of the Alexander Graham Bell Speech Association. Its editorial office has been from the beginning in Washington, D.C., at the Volta Bureau. This Bureau was started by Alexander Graham Bell and will ever be a monument to his efforts in behalf of the education of deaf children. Its library is a storehouse of information on matters pertaining to the deaf and their education.

PRE-SCHOOL TRAINING

The early education of the deaf child is of paramount importance. Out of 22,100 children currently enrolled in schools for the deaf in the United States, 1,899 are under 6 years of age and are listed as pre-school. The 80 public residential schools for the deaf, having just over 14,000 children enrolled, have only 593 children in their pre-school classes. Denominational and private schools, with 1,943 children enrolled, have a total of 577 children under 6 years of age. Of 1,954 children enrolled in 10 public day classes, 496 are under 6 years of age. From these figures it will be seen that there is considerable promotional work to be done in the public residential schools to provide greater facilities for pre-school children. The very fact, however, that these are residential schools works against the possibility of a rapid increase in the enrollment at the pre-school level, because parents often refuse to permit their children to leave home at such a tender age. Research must be conducted at this age level, and ways and means should be found to provide an earlier education for these deaf children in the public residential schools. Otherwise valuable years are lost.

It is interesting to note that there are 1,802 children on waiting lists of American schools for the deaf; 690 of these are under 6 years of age, the usual age when children enter classes for the deaf.[7]

Correspondence courses for parents of deaf children vitally concerns the pre-school child. There are three such courses: *Correspondence Course for Deaf Pupils,* Miss Doris I. Mirrielees, 3407 Estelle St., Hapeville, Georgia (affiliated with the Home-Study Department of the University of Chicago); *The Hadley Correspondence School for the Blind,* Donald W. Hathway, Advisor, College Department, 62 Lincoln Ave., Winnetka, Illinois (Correspondence Courses for the deaf-blind); *John Tracy Clinic,* Mrs. Spencer Tracy, Director, 924 W. 37th St., Los Angeles, California (Correspondence Courses for parents of deaf children).[8]

ELEMENTARY AND SECONDARY EDUCATION

The number of grades taught in the various schools varies from six to twelve. The average number of grades in the public residential schools for the deaf today is 10.4. However, a school that has nine grades listed has three years set aside for preparatory work; the fourth year corresponds to the first grade in schools for hearing children. This is based on the assumption that it takes three years of work with small deaf children to bring them into readiness for first grade work. Another school lists 12 grades and one preparatory year; another 10 grades but two preparatory years, etc. The average number of preparatory years is 2.6. If we add this to the average number of grades, which is 10.4, we get an average of 13 years in schools for the deaf child.[9]

The following are some interesting statistics on the number of graduates. In the year 1953 there were 457 academic graduates from the public residential schools, and 116 from the vocational departments. More significant are the figures which give the number dropping out of school before graduation. There were 255 in the academic departments who did not graduate, and 83 who finished the vocational departments did not graduate. Therefore, out of a total of 911 students who left the public residential schools at the end of the year, only 457 completed the academic course. Some of these were undoubtedly capable of doing further work in higher education. How many we do not know. From these figures we do know that 457 young men and women in the public residential schools for the deaf spent about 13 years in school and did well enough to complete the course of study. That is approximately half the group of 911 young people who left the schools at the end of the year, the other half having left without completing the courses. This all points to the need for more concentrated efforts in secondary education. Perhaps more work is needed in the primary and intermediate departments, also, so that the foundation for better learning will be established. The minimum educational goal for deaf children should be a high school education, and an improvement in the efficiency of the work done in the primary, intermediate, and secondary levels will increase the number of young people who qualify for college entrance, also.[10]

Of the total enrollment of 954 students in the 10 public day schools for the deaf in the United States, 102 graduated and only six left school without graduating. However, in the public day schools the average number of grades is 7.9 and the average number of preparatory years is 2.9, making a total of 10.8 grade years in school. In comparison with the public residential school for the deaf, students stay in the public day schools approximately two years less. Some real thought must be given to an extension of the time these children may remain in the public day schools, and the possibility of their completing a high school course.[11]

HIGHER EDUCATION

As the complexities of life continue to mount, additional education is necessary for all young people, including the deaf. It is possible for the deaf student to go to a college for hearing students and do it successfully. However, there are many who drop out of school before the completion of high school because they find competition with hearing students too great a strain. The strain is even greater in college. Lectures are difficult to follow because the teacher walks back and forth before the class. Speech reading is impossible for many reasons. It is difficult for the deaf student to take notes. Frustration sets in. Often, before there has been an adequate attempt at success, the student drops out to accept employment.

There is an opportunity for higher education for the deaf student at Gallaudet College in Washington, D.C. This is the only college exclusively for the deaf in the world. It is the purpose of the college to get knowledge to the deaf student as rapidly as possible. A combination of simultaneous means of communication enables the speech reader to use his ability, and the non-speech reader can get from the hands what he cannot get from the lips. One has to see this means of communication in operation to appreciate its effectiveness. For those who wish to develop leadership qualities, Gallaudet College provides this opportunity. There are over 25 student organizations in the college; thus, 25 presidents, 25 secretaries, etc. Athletic competition is possible; each athlete has a chance to make the team. In dramatics the deaf are very capable; Gallaudet College students have an opportunity to take part in dramatic productions, and they do it very well. Gallaudet students have their bull sessions, as do other college students. There is a noticeable feeling of relaxation on the Gallaudet campus, because there are easy means of communication.

THE MENTALLY RETARDED AND THE CEREBRAL PALSIED

The mentally retarded deaf child is currently very much in the minds of educators of the deaf. Undoubtedly there are many deaf children in mental institutions throughout the country. Few states provide any educational opportunities for these children. The State School and Colony at Faribault, Minnesota, a school for mentally retarded children, has 44 deaf children under instruction, with a full-time teacher. At Sonoma State Hospital in California, a similar institution, there are 12 deaf children under instruction of a full-time teacher.[12] The day should come soon when provisions are made for all such children.

Another group of multiply handicapped children are those who have had cerebral palsy and also have a loss of hearing. Very little has been done for these children. Some have to be hospitalized; others come to clinical centers for treatment. Provision must be supplied for speech reading lessons and corrective speech work for these children so that they will have the opportunity to develop as normally as possible.

PARENTAL INFLUENCE

Perhaps no parental situation is as tied up with emotion as the home where there is a small deaf child. Resistance to the very idea of deafness being possible; frustration after the fact has been established; bitterness because there are apparently so few in the community; helplessness in the absence of a means of communication; hesitancy in approaching physicians and educators who can help; reluctance to accept the inevitable, which is education instead of a cure; and, finally, fear itself for the whole future of the child in school and after school, — all combine to make life most difficult.

Fortunate are those parents who get good advice and get it early. More fortunate are those who accept advice of educators who have had experience. Blessed are those parents who, while praying for miracles, will use all means available to develop a fine upstanding well-adjusted citizen.

Success stories among the deaf are a comfort to parents of deaf children. All parents should subscribe to *The Silent Worker,* 2495 Shattuck Avenue, Berkeley, California. All parents should want to know what is being done for and with deaf children in the world. Subscribe to:

The *American Annals of the Deaf*, Kendall Green, Washington 2, D.C.
The Volta Review, 1537 35th St., N.W., Washington 7, D.C.
Exceptional Children, Journal of the International Council for Exceptional Children, 1201 16th St., N.W., Washington 6, D.C.

The combined costs of these publications is small for an investment in hope and encouragement for parents.

Parents should never discount the work done in any school for the deaf. A visit will usually stimulate ideas for improvement, and no one school or group of schools have all the answers, but excellent results are being accomplished in most schools.

THE DOCTOR

The medical profession is intensely interested in the deaf child. There is no excuse for lack of medical attention if the parents are alert. They should be advised to go to the nearest clinic as soon as deafness is suspected, as early detection may prevent a further loss of hearing.

Some way must be found to make the educational needs of the deaf child of greater importance to the physicians so that valuable educational time can be saved. Early years are learning years for the deaf child; once lost, they can never be regained. If medical schools could make arrangements for senior classes to become acquainted with educational procedures available to deaf children, the doctor would be better prepared when opening practice. It is not easy for him to visit schools for the deaf after his practice is started, and he is usually busy to attend meetings where these matters are discussed. Yet the parents look to him for this information. He can at least know where to refer them. A kindly bit of advice will save much of the heartache so often associated with the first awareness of a hearing loss in the child. The doctor sees the child first. Fortunate is that parent who gets good educational advice from the doctor on the initial visit. It need not be inclusive advice, — just the knowledge that an education is available is a great comfort to the parents. Most persons know nothing of schools for the deaf; they have never had an occasion to think about such a necessity.

Fortunately, there are very few 'cures' for deafness advertised today. The medical profession has taken care of these. Good advice is available in all states. P.T.A. meetings should be interested in annual surveys of hearing. The physicians in the community will cooperate. Follow-up procedures are just as important as the survey, which otherwise is a waste of time. Service clubs and other philanthropic organizations are usually happy to help underwrite such surveys. It is suprising how many groups want a project. Conservation of hearing through periodic testing programs makes an excellent project. Again the medical profession will assist.

Medical schools in the nation are alert to their responsibilities in hearing problems. Some operate hearing and speech clinics; some have pre-school classes for the deaf; and others provide lectures on speech and hearing problems. These services are being increased from year to year, a most encouraging development.

Colleges and universities are doing much to encourage teacher training in the field of educating the deaf. Of the 22 actively engaged in this project, 17 are located in eight states and the District of Columbia. Three are in California and there are two in each of the following states: Kansas, Illinois, and Michigan. New York State has four. The District of Columbia, Massachusetts, Pennsylvania, and Tennessee have the other four. This is just a beginning. There will be others. The one large problem will be laboratory classes. Theory without practice in this specialized teaching area is a real problem.[13]

An increasing number of hospitals are establishing speech and hearing clinics. Forty-nine hospitals in 16 different states and the District of Columbia have established such units. This interest is encouraging, as the tremendous resources of these hospitals can do much along research lines.[14]

The State Departments of Health in all 48 states and the territories of Alaska, Hawaii and Puerto Rico supervise clinics that offer many different types of services. Only 21 states conduct state-wide hearing tests in the schools. Only 14 states have laws requiring a hearing test of all children. Twenty-eight states provide some form of education for parents of deaf children. Four states provide mobile speech and hearing units.

All these services are encouraging steps in the program to solve the problems of deafness in children and adults.[15]

Hearing Aids for the Deaf

The hearing aid has been freely recommended as the solution to the hearing loss problem. Where there is a remnant of hearing, mechanical amplification can mean much. Speech reading is less difficult in many cases when sound accompanies it. This is true even when interpretation of the sounds heard is impossible.

Experience at various clinics indicates the value of the use of amplification with those who have serious losses. The use of hearing must be learned.

There must be an opportunity for all deaf children to have this learning experience. It is known today that there are very few deaf children who are beyond the benefits of favorable hearing aids. "The mind's understanding (use of hearing) is a learned activity, and the deaf child needs every opportunity and every chance for auditory stimulus, to learn to use what residual hearing he has."[16]

It is reasonable, however, to remember that the use of amplification in these extreme cases must be only a part of a broad approach to the educational needs of the deaf child.

> There is a promiscuous use of hearing aids on very young children on the assumption that this will take care of their language, speech and academic needs. This is not true. On the basis of clinical experience and research, it is becoming increasingly clear to us that hearing aids must be fitted in a planned, deliberate, cautious manner if they are to be of help to young children, and if they are not to cause emotional difficulties as the child gets older. It is our distinct impression that training in socialization and language development are of equal importance, and in some children with severe hearing impairments perhaps of more importance than the use of amplification in terms of the child's long range adjustment and needs. This does not mean that we are not enthusiastic about the use of amplification, but it means that the use of amplification must be a part of a broader more extensive approach to the child's needs.[17]

There are many hearing aids available, and the American Medical Association has discontinued its policy of certifying acceptable hearing aids. However, most reliable companies will give the customer a trial period. The various agencies referred to in this chapter will be glad to give information on all matters pertaining to these instruments. It is highly essential that the public accept hearing aids as eye glasses are accepted. This situation is being accomplished, but it is a slow process.

DEAFNESS AND COMMUNICATION PROBLEMS

Just a little thought will reveal how important a part communication plays in daily living. During a busy day, situations constantly arise in which communication skills are necessary. It is so easy to pick up the telephone and ask for something. The deaf cannot do this. We have lost that collar button, so we call downstairs to Mother, who knows where everything is. Deaf persons cannot. Junior has left the house without his lunch box. Mother calls to him as he runs down the street. The deaf child does not respond. We are puzzled by the pronunciation of a word. Webster's dictionary helps us. If we are deaf and cannot hear how a word is spoken, how do we know if we are saying it correctly? The deaf person never corrects a mistake in pronunciation unless he is told about it. At the conference table men and women meet for a discussion. What about John? He is deaf. Shall he be invited? He will not be able to follow the discussion; and so he is not included. In business, in pleasure, at home, on the street, wherever communication plays a part, the handicap of deafness sets up barriers.

There are those who believe that speech reading will fill the gap. Some will suggest a hearing aid. Glasses do not enable a blind person to see; a little gadget in or behind the ear will not restore a deaf man's hearing. A dead auditory nerve is just as dead as a dead optic nerve. It is most important that the hearing public become conscious of what the handicap of deafness really is, because where there is understanding of a problem it is possible to arrive at a better solution.

There are various problems of procedure in the different schools for the deaf. The word 'method' is confusing, because when we speak of methods we actually refer to the means of communication used in educating the deaf.

There are no schools for the deaf today that do not start all children *orally* in the classroom. At this point it might be well to refer to a distinction some make in connection with the education of the deaf child. It is held by some that in an 'Oral' school children are *educated* orally; while in schools where the oral method is not used exclusively in and out of the classroom, the children are *taught* orally. The implication is that "Oral" schools insist upon the use of speech and speech reading both in and out of the classroom; every effort is made to eliminate the use of gestures and signs, or the use of the manual alphabet, in the shops and on the playground. The degree of success attained in this effort is dependent upon the absolute belief in this practice by all who contact the children and in the adequacy of personnel needed to control the actions of the children at all times. It will readily be appreciated that growing children crave a ready means of communicating their thoughts, and the temptation to resort to any means of communication is ever present. Eternal vigilance during every waking hour is essential.

The Oral System is most successfully possible in day classes where the children are in school all day under close supervision. After they leave the school this close supervision is absent, except as the parents may or may not insist on the same devotion to the Oral System. It is not as easy for the parents to control this as it is for the teacher. That is also true of most school experiences when parents have to 'take over.'

The residential school usually has a different group of men and women to supervise the activities of the children after school hours, and too often the best plans of the teachers fail because the activities of the children cover such large campus areas that personal supervision is impossible. Unfortunately it is true that the quality of supervisors or house parents is often not equal to that of the teachers. It is difficult to get good supervisors; salary schedules, as a rule, do not encourage the right type of person to take up these duties.

The other so-called system is the Combined System. Proponents of this system, or method, philosophically accept the fact that, whereas the oral approach in the classroom is most essential, the practicality of the same approach out of the classroom is not possible to such a degree as to warrant the energy expended upon it. Research has not proved that the oral approach described in the preceding paragraphs has provided more mature and better socially adjusted children than the combined approach to the problem. The use of the manual alphabet and the language of signs does give the child a ready means of exchange for the thousands of ideas he has. He does exchange these ideas as readily as does the hearing child. This procedure does not seem to adversely affect his ability to use the speech and speech reading he learns in the classroom. If he is a child who naturally reads speech well and learns to speak easily, he will just naturally use what he learns. If he is one who gains these accomplishments slowly and with difficulty, he needs an added vehicle of expression to keep him 'in the swim' of things going on about him.

These so-called combined schools have manual classes for children who, after a fair trial, do not show any appreciable improvement in speech reading and speech. The teacher uses the manual alphabet and a greater amount of blackboard work in her teaching. She may be a deaf teacher or she may be a hearing teacher who knows the manual alphabet. Words are spelled out as they are spoken. Sentences are spelled out as they are spoken. The English is the same as spoken English. So often the manual alphabet is confused with the sign language, which is a picture language. The use of the sign language in classrooms is discouraged in all schools.

The word 'combined' means just what it says: All methods are combined to bring forth results. Schools that use this methods do so on the basis that deaf children are in most respects normal children. Normal children are not identical children. They are not identical as to facial features, stature, sex, physical strength or mental ability. Neither are deaf children. As hearing children are taught in the most expedient ways possible, so are deaf children taught by the supporter of the combined method. Oralism is respected for its marvelous possibilities. It should and must be available to all. It is not, however, without its limitations, which are recognized and avoided in the combined method.

The watchword of the oralist is 'normalcy.' To him normalcy in deaf children is speech reading ability and the ability to speak. The definition is good as far as it goes, but the assumption that anything but speech and lip reading is abnormal is hardly reasonable. Dr. Pintner warned against making the deaf child "a poor imitation of a hearing person."[18] Too often we have seen children who have spent such a large part of their school years becoming a "poor imitation" that their sum total of acquired knowledge is far below what it could have been, had it been reasonably enriched with the "three R's" we need so intensely today.

We then come to a third method, the Auricular Method, or as it is sometimes known, the Acoustic Method. This is simply the maximum use of residual hearing. It is practical. No one can argue that we should not use every remnant of hearing at any and all times. Today classrooms are using multiple unit hearing aids. Individual aids are available at more and more reasonable prices. The nation is becoming hearing conscious. This is all to the good. Many wonderful results are in evidence in all parts of the nation. No effort should be spared to utilize all remnants of hearing. Modern testing devices are available so that reliable hearing graphs can be obtained on each child.

One caution is to be noted. While we are thrilled at the possible results, we must not forget that the daily tough schedule of class work must go on. There is no royal road to success for the deaf through speech reading, speech, the manual alphabet, the sign language, or the use of hearing aids. It is still a painfully slow process of learning that the deaf child must pursue. As we are utilizing all possible aids, we must at the same time put in the same amount of patience as in the past. It is still difficult to gain an education when most of it must be obtained through the eye. That teacher who is keyed to the many advances of the present, but who uses the proved methods of the past to accomplish results, is a good teacher. She has a fine sense of values. She is not blind to the present, nor does she close her eyes to the past. She is not impatient for short cuts, but is ready to use those she finds valuable.

There will always be enthusiasts who will make great claims, but the best teaching is being done in the well-established schools where well-trained teachers teach well-graded classes of average children. No school for the deaf is so poor that a spark of veritable genius may not be uncovered. As judgment is passed on this school and that school, it should be remembered that no school has a 'corner' on progress. The very fact that all schools are not in agreement is an indication that they are alive and alert. No federal agency dictates this method or that method. Out of our present schools for the deaf will come the ultimate solution as to what is best. The fact that an agreement has not been reached in this country since 1817 regarding the education of the deaf is an indication that there is still a real question as to methods used and their effectiveness. The search for truth will bring forth the best for our children.

THE DEAF AS CITIZENS

We can well be encouraged as we see the results of our efforts over the 138 years since the first free school for the deaf was established in Hartford, Connecticut. Graduates and former students of our schools for the deaf constitute a group of substantial citizens in our nation. They are self-supporting, self-respecting, family-loving, home-building citizens who ask no favors and want only the opportunity to live meaningful lives.

After the deaf person has completed his education, he must face the problems of the deaf adult and accept his place in the community. While he has been in school he has been in a sheltered environment. This is true of the child who has gone to day classes as well; it matters little how much effort is directed towards making the day school deaf child a part of the hearing school community; he is still happiest when he is with deaf children. When he leaves that school he goes out into the community as a deaf person in a hearing world. There are over 165,000,000 hearing people in the United States today, making the proportion of hearing to deaf 1,100 to 1. It is quite possible for a hearing person, therefore, to go through life and never actually come in contact, in a communication way, with a deaf person. It is hardly reasonable to expect 165,000,000 hearing people to know much about 150,000 people who cannot hear. And yet it is just this lack of knowledge on the part of the 165,000,000 that makes the handicap of deafness as severe as it is. Miss Helen Keller has made the statement that if she had her life to live over again she would devote more time to the deaf, because of the two handicaps—deafness and blindness—deafness is the greater. Her thought, I believe, is that deafness is the greater educational handicap, which is a most important consideration.

Opportunities in this country for the deaf are unlimited. The educated deaf person owns a home, drives a car, marries the girl of his choice, raises a family, and takes his place in the community; in short, he is a self-supporting citizen and a credit to his parents, his school, and the community in which he lives. There is a trend among the deaf to establish homes in urban centers where they can associate with other deaf people. Some criticize this tendency. It is only natural that a deaf person is more relaxed when he is with another deaf person, because they understand each other, have common interests and common communication problems.

Over fifty years ago the deaf found it impossible to purchase life insurance unless they paid increased rates. They established their own fraternal society, The National Fraternal Society of the Deaf. Today it is a flourishing company, with branches in practically every state in the Union. It publishes a monthly paper called *The Frat.* Its ladies auxiliary is a thriving organization. The National Fraternal Society of the Deaf writes insurance in the millons. The only hearing persons connected with this venture are those who handle the telephone in the central office in Chicago, Illinois. This is evidence of the enthusiastic zest for living that deaf citizens have.

Some years ago the deaf found it desirable to be organized outside of that specialized field, and so they established the National Association of the Deaf, representing the deaf in all parts of the United States. This organization has grown through the years, and today has its home offices in Berkeley, California. The Association publishes a monthly magazine, *The Silent Worker,* which is for the deaf person what *Readers Digest* is for the hearing public. *The Silent Worker,* which more people should read, is a pictorial magazine filled with success stories of deaf persons from all parts of the United States.

The deaf support other interesting projects. They hold a national basketball tournament in a different part of the nation each year. They also have bowling and softball tournaments. They excel in dramatic presentations.

The religious life of the deaf has been and is a real problem because of communication difficulties. A deaf family moving into a community faces a problem of church affiliation. If it is a small community, the only contact is with churches for hearing persons. As the deaf can not follow the sermon, they will get very little from the church service. They may derive some pleasure from membership in the Men's Club or the Women's Club. Their hearing children may go to the Sunday School. In larger communities there may be ministers trained to work with the deaf. Some denominations do more for deaf persons than others. The Catholic Church is greatly interested in its work with deaf persons. The Lutheran Church, especially the Missouri Synod, has a large number of hearing ministers trained to work with the deaf. The Episcopal Church organizes deaf congregations and trains deaf men as ministers. Other denominations are beginning to show greater interest. The outlook is encouraging.[19]

The question is often asked, "Do the deaf drive automobiles?" The deaf have an excellent record as operators of motor vehicles. Recently in the District of Columbia a faulty report in the newspapers concerning deaf drivers brought forth a storm of protest to the Commissioner of Traffic, stimulating a statement from him to the effect that deaf drivers in the District of Columbia have a better safety record than hearing drivers. When the windows of a sedan are closed, the driver cannot depend on his hearing; he has to depend on sight. The deaf person always depends wholly on his eyes and is usually an alert, careful driver.

"Do the deaf marry? Should the deaf marry?" are questions often asked. The deaf do marry and in most instances the marriages are successful. It has also been asked, "Will the children be deaf?" Unless there is a history of deafness in the families on one or both sides, there is little likelihood of deafness in the children. In most instances the deaf are excellent parents and very conscientious in their efforts to bring up their children.

"Do the deaf have difficulty in getting positions?" In normal times most deaf persons are employed. Those who wish to work can find work. Of course, when times get hard and positions are difficult to find, the handicapped person is usually the first one to be released. Each State has a Vocational Rehabilitation Office. In most such offices there are trained personnel to locate positions for deaf persons and place them in these positions. The results have been most gratifying. The deaf person can actually be what he wills to be. This is a rather broad statement, but it is true. The deaf person who has only a grade school education will find his job opportunities somewhat limited. The educated deaf person may qualify for white collar jobs. There is almost as wide a range of job opportunities for the deaf as there is for the hearing person. It is not difficult, nor does it take long, for a person to learn a skill, but it often takes time to teach correct work habits and the right attitudes to go with aptitudes. Therein lies the job of the Vocational Rehabilitation worker. Very often the State Schools for the Deaf give assistance in locating positions for the deaf, but it is usually best for the advice to come from a few well organized units, such as the Vocational Rehabilitation Office. This guarantees the least duplication of effort. Once a deaf person has proved himself, he usually turns out to be a very acceptable employee. Difficulty occurs when the deaf person attempts to secure the position. Unless the employer knows deaf persons, he cannot understand how someone who doesn't hear can be a success on the job. It usually takes a trial period to impress upon him the advisability of continued employment of the deaf person.

The deaf, as a group, are opposed to all types of begging. There is big money in begging, and there are those among the deaf who will resort to this way of getting a living. There are always unscrupulous hearing persons, too, who will organize groups of deaf persons to travel over the country, swooping down upon small communities and covering them in an hour or two, and then moving on to others. Since there are ample opportunities for the deaf in this country to secure employment, it isn't necessary for the deaf to engage in this activity. The cooperation of the hearing public is necessary so that the practice can be eliminated.

The deaf, as a group, are very sensitive to those in their number who have reached old age and are not self-supporting. In several states they have established homes for the aged deaf. Perhaps the largest of these is in Ohio, with about 50 residents. There is another in New York and another in Pennsylvania.[20] Others are being considered. These homes are organized of, by, and for the deaf and are not supported with public funds. This is a real evidence of the thoughtful consideration deaf persons have for their less fortunate members.

The General Public Meets the Deaf

Be natural. Speak distinctly, and do not slow down the tempo too decidedly. Enunciate clearly. Even though the deaf person cannot hear the voice, the added effort made may produce more accurate speech. Beware of mouthing.

Try not to stare. A group of deaf persons using the language of signs does attract attention, but you should refrain from making remarks to those in your group which may direct sudden attention to the deaf group. Of course the deaf are sensitive, but no more so than hearing people speaking a different language. The language of signs is graphic. Sometimes facial expression may be too decided; there is always that individual who over dramatizes the language of signs.

If a deaf person is with hearing persons, an effort should be made to make him feel a part of the group. Speak to him. If speech doesn't suffice, then use a pad and pencil. It is well to face a deaf person when speaking to him, as standing at an angle may make speech reading most difficult. The voice should not be raised to an unusual pitch, but a moderate increase in intensity may be necessary. If what you say is not understood, rephrase the statement immediately. Speech-reading involves a constant search for words. When the key word is not understood, there is no comprehension. The key word may not show on the lips. There are many words, such as uncle, cousin, sister, dinner, that have no lip movements. Contrast these with father, mother, brother, beautiful, love. These are 'outside' words, and are very readily seen on the lips. Speech reading is 'educated guess work.'

There is nothing as disconcerting to the deaf person or to the hearing person in meeting a deaf person for the first time as a lack of understanding of what the situation really involves. Be a missionary in your group without being too obvious about it. Never monopolize the time of the deaf person, but introduce him to others, as you would a hearing person. This, of course, is not easy; in fact it is most difficult for all concerned. There are no two sets of lips alike. There will be those who object to the pad and pencil. There will be those who just cannot bring themselves to speak easily to the deaf person. However, you may be sure that any effort on your part to make the deaf person feel himself a part of the group will be appreciated.

THE DEAF PERSON MEETS THE HEARING PUBLIC

Now, let us take the opposite side of the situation. A deaf person meets hearing persons in a group. If he can speak at all, he should do so. He may not have good speech—it may even be quite difficult to understand—but poor speech is better than no speech at all. If it is found after continuous efforts that there is no understanding, it is better to resort to pad and pencil. There may be someone in the group who can act as an interpreter for the deaf person, but it isn't wise for the deaf person to depend wholly upon interpreters; that crutch will not always be available. Care should be exercised not to speak too loudly. The observing deaf person will soon learn that loud speech attract attention. People will turn to look. That is a signal to tone down the volume of the voice.

It takes nerve, but the deaf person should strike out boldly and contact different persons in the group. It will not be long before his handicap is known, and most people will respond to advances in friendship. If the confidence of one person is gained, do not embrace that confidence too long, because it may be a tiring first experience for the hearing person. There is always a tendency to enjoy the comfort of such an experience beyond a reasonable time.

A sense of humor is essential. There will be misunderstandings. Much repetition will be necessary. Any interesting incidents that can be related of misunderstandings in the past will set new hearing friends at ease. If possible, attend gatherings of hearing people with persons who can hear. The contacts will be easier. After the first introduction it is possible to pass on from one friend to another. Never stay too long at such a gathering. It is better to be the first person to depart than the last.

Limit bluffing. There will be times when understanding is impossible. There will be temptations to bluff. It is usually best to frankly admit that you do not understand. Suggest a modest amount of repetition. Many humorous, but often disconcerting, situations have arisen because one has resorted to bluffing. As stated before, speech reading is educated guess work, and it is possible to become a good guesser.

If the language of signs is used with deaf friends and those who can hear indicate an interest in it, it is well to take time to explain a few of the signs and the manual alphabet. This is a most fascinating subject for hearing people, and they do have an interest in it. It is well to carry alphabet cards. Very often passing these around can liven up a party.

If there are two or three deaf persons present there should be a limit to the amount of time spent with each other. It is only natural that the deaf are happiest when together, but it is well to try to be friendly with others in the group. If one deaf person is more adept at speech or speech reading, it is perhaps well to stay near that person, but not to the exclusion of all others. If deaf persons resort to the language of signs with each other, it is well to reduce the publicity connected with the use of signs. It is just as discourteous to be overemphatic in the use of signs as it is for a person with normal hearing to speak too loudly in a group. The eye can be offended as well as the ear.

CONCLUSIONS

The education of the deaf child involves from the start almost complete compensation for the loss of one of the five senses normally available for educational purposes. The eye takes over completely when the remnant of hearing is negligible. Speech reading replaces hearing for understanding of the spoken word. The absence of a workable vocabulary from the start cuts out the *Why, Who, When and Where* questions the average parent has to survive. Consider the loss suffered by the child.

The road to learning is further complicated by frustrated parents who cannot accept the child's loss of hearing; by poorly informed educators who do not know what is available educationally for the deaf child; by enthusiastically established clinics all too eager to promise sure-fire educational results with normalcy guaranteed; by avid audiologists who exaggerate the possibilities of small remnants of hearing; by all-knowing critics who condemn well-established schools for the deaf that have been in this work for many year; by well meaning enthusiasts who promise parents that the child can be taught with hearing children after a few years of intensive training; by clinicians who treat the deaf child as a statistic instead of a handicapped child who has a long way to go educationally and cannot get there on figures and percentages.

There is no royal road to learning for the deaf child. There are no short cuts. Every cut corner leads to a detour and lost time until the child is back on the main highway of learning. The deaf child needs intensive training with teachers who have the patience to work with him. The nation has too many deaf adults who were victimized in their youth by well meaning 'road builders' who specialized in short cuts and detours. Eventually it became too late to catch up. These adults never arrived, educationally. Tragedies of the educational road!

What is the solution? Reason based on knowledge of the field. One hundred and thirty-seven years of educational experience in this nation has given us a history of what can be accomplished. It has not been enough, but it must not be sacrificed until the new has been proved more effective.

Parents must seek the truth and not accept just what they prefer to know about deafness. Teachers must learn to know what other schools are doing. No school has the only successful approach. A willingness to know all sides of a question is all important.

Physicians must be willing to admit the lack of knowledge sufficiently to enable them to give educational advice. Audiologists should spend more time in the classrooms of deaf children. Clinics must not take on school responsibilities until they have scholastic characteristics that satisfy minimum requirements.

Allied organizations interested in all handicapped children can assist but cannot conduct fully accredited classes for deaf children.

There is a great need for cooperation at the State level in the education of the deaf child. All agencies concerned with deafness in each state must be better known to each other. The present trend of mushrooming agencies taking up the education of deaf children must be studied. A little White House Conference on the education of the deaf child should be arranged so that all agencies can be brought together to study the problem collectively.

Today we find residential schools for the deaf, day schools in the larger cities, day classes, university clinics in the large universities, private schools in some states, private enterprises such as sororities and Junior Leagues, societies for the hard of hearing, societies for crippled children, vocational rehabilitation offices, and other organizations, all indicating an interest in the deaf child and the deaf adult. To assure maximum use of all this fine interest, it is highly essential that each one of these agencies know what the others are doing. The major 'roadblock' facing rehabilitation of the deaf today is that there is so little tendency among the various groups working with deaf persons to share experiences. If a study were made, it would be found that there is a place for each of these groups, and overlapping would be eliminated. The parent would be able to get expert advice in time. The child would be properly placed in school, the graduate in employment. The deaf adult would find his natural place in society, because he would be known by society and not by isolated groups only.

Problems faced by the deaf adult are proportionately great or small depending upon the success with which early educational efforts have been effected. Since 1817 the deaf child in this comparatively young nation has fared well. Today it is possible for deaf children in all states and territories to get an education without cost to his parents. The deaf adult in the United States

THE WONDER OF SOUND
Los Angeles City Schools, L. A., Cal.

YOUNG DEAF CHILDREN EXPERIMENT WITH VIBRATION OF SOUND
Special Class, Los Angeles City Schools

USING SIGHT, TOUCH AND HEARING IN TEACHING THE DEAF
John Tracy Clinic, Los Angeles, California

EDUCATION OF DEAF CHILDREN — A DEMONSTRATION
Hunter College Vacation Demonstration School, N. Y. C.

VOCATIONAL TRAINING OF THE DEAF
New York School for the Deaf, White Plains, N. Y.

AUDITORY TRAINING OF THE DEAF
New York School for the Deaf, White Plains, N. Y.

is well off when we compare opportunities open to him with opportunities available to the deaf in other nations. Here the deaf person can be what he wills to be. This may be considered an optimistic conclusion. It does not mean that there are no new frontiers in the education of the deaf child and in the adjustment of the adult in this country. There is much yet to be done, but we are fortunate to have such a fine foundation upon which to build.

Deafness in children is being detected earlier. After detection training is being offered earlier. Pre-school classes, nursery schools, and kindergarten classes are available in most urban centers. Where they are not available, residential schools are providing the early training.

A shortage of teachers is handicapping most schools and classes for deaf children. Real energy must be put forth to recruit students for our training centers. University and hospital centers are taking an increasing interest in the deaf child. Audiologists are making some interesting observations on the possibilities of a better use of residual hearing. Hearing aid companies are organized for the manufacture of improved aids which can help the more severe cases of deafness.

There is a definite lag in educational progress at the secondary level. If an earlier start and a general acceleration all along the line is possible, more deaf students will be interested in high school, because they will still be of high school age. At present the average age of students in junior and senior classes among the deaf is 19. Most young people with normal hearing are through high school at that age and in college or out on the job. Deaf students see this and begin to lose interest in school and take an increasing interest in job possibilities. We must speed up all along the education line! If there are more high school students, more will be interested in college. Some will attend colleges for hearing students, others will come to Gallaudet College.

That large group of deaf men and women who do not attend college but go on into industry will have increased opportunity for job placement, because the nation is becoming more conscious of the capabilities of the deaf worker. State Vocational Rehabilitation Departments are getting larger appropriations. Their offerings are being broadened. A better day is dawning. However, it is good not to sit back and rest, because 165,000,000 hearing persons will never know enough about the 150,000 deaf persons in their midst. A continual program of public relations is necessary on the part of all who engage in this challenging work.

FOOTNOTES

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3. *Volta Review*, Vol. 12, June-July, 1910, p. 197.
4. *Ibid.*
5. Loy E. Golloday, *The American Era*, West Hartford, Conn., Vol. 34, No. 5, p. 1.
6. *Ibid.*
7. *American Annals of the Deaf*, Vol. 100, January, 1955, p. 89.
8. *Ibid.*
9. *American Annals of the Deaf*, Vol. 99, January, 1954, p. 171.
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11. *Ibid.*, p. 189.

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13. *College and University Programs for the Preparation of Teachers of Exceptional Children*, Bulletin 1954, No. 13 (U.S. Department of Health, Education, and Welfare, Office of Education: Washington, D.C.), p. 31.
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15. *American Annals of the Deaf*, Vol. 100, January, 1955, p. 150.
16. Warren G. Hardy, "Hearing Aids for Deaf Children", *Volta Review*, October 1954, p. 355.
17. Helmer Myklebust.
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CHALLENGES OF THE PRESENT TIME TO THE EDUCATORS OF THE DEAF

POWRIE VAUX DOCTOR

The future education of the deaf may be more influenced by factors affecting all areas in the field of special education than has been true in the past, particularly in the nineteenth century. This may be brought about in a large measure by the increase in the number of courses in special education now being given in Department of Education in colleges and universities, departments that formerly paid little attention to this branch of education.

INTRODUCTION

During the nineteenth century the blind and the deaf were the two most important areas in the field of the physically handicapped in the United States and received the greater amount of attention. This is quite evident when it is realized that the first school in special education in the United States was founded with the establishment of the American School for the Deaf at West Hartford, Conn., in 1817. With the continued growth of other areas in the field of the physically handicapped, all competing for teachers and for appropriations, it seems likely that although the education of the deaf may continue to grow in the next fifty years much as it has during the past, it may not loom quite so large on the horizon as in the previous years, because many of the newer groups will be doing much of the pioneer work that was done formerly for the deaf and the blind during the past century.

The changes in the educational trend during the next fifty years will probably affect other special schools more than it will the schools and the classes for the deaf. The educational procedures in most schools and classes for the deaf will probably follow along much the same lines it has since 1867, 1868, and 1869. In 1867 the Clarke School for the Deaf in Northampton, Mass., and the Lexington School for the Deaf in New York City were established. Both schools used the oral method. In 1869 the Horace Mann Day School for the Deaf, an oral school, was established in Boston, Mass. In 1867, Edward Miner Gallaudet returned to America from an extensive tour of schools for the deaf in Europe. In 1868 he called a meeting of the Conference of Executives of American Schools for the Deaf* at Gallaudet College in Washington, D.C., at which time the Combined System for teaching the deaf was introduced into virtually all state supported schools for the deaf in the United States. The manual method had been introduced at the American School for the Deaf in Hartford, Conn., in 1817, and separate courses for the teaching of speech to the deaf, or articulation as it was then called, were added during the following years. The first full time teacher of speech in any school for the deaf in the United States was employed by the American School for the Deaf in Hartford, Conn., in 1857. After viewing the results of the oral system in European schools and the manual method in the American schools, Edward Miner Gallaudet had become convinced there was merit in both approaches and advocated the Combined System for teaching the deaf, which provided for oral classes and manual classes to be conducted within the same school system. This arrangement still prevails in virtually all state residential schools for the deaf, although all day schools and day classes operate under the oral method. Since 1930, more and more rooms in schools for the deaf have become equipped with group hearing aids. In 1954 over a thousand of the classrooms in schools and classes for the deaf were thus equipped. All of these trends will probably continue to grow with little or no basic change.

MEDICAL SCHOOLS

The medical schools throughout the nation are becoming much more concerned with the problem of hearing loss and its effects. Some of the medical schools are making places on their staffs for teachers of the deaf who give lectures to the medical students on the problems of deafness, on methods regarding prevention of deafness, on methods of teaching the deaf, and on how to give advice to parents of deaf children. Some medical schools have preschool classes for deaf children where the medical students are given practical demonstrations in teaching the deaf and in the use of hearing aids in order to utilize the slightest remnants of hearing that the deaf child may possess. Such indoctrination of medical students may do much to prevent deafness as doctors become more aware of precautionary measures in this area.

SPEECH AND HEARING CLINICS

Although some work was done in World War I for deafened soldiers, a much more detailed program was carried out in World War II.[1] The hearing aid also came of age during the war years, and thus the war effort for the deafened soldier, the advent of electrical amplification in the hearing aid, and a greater awareness on the part of the public toward all physical handicaps, resulted in a tremendous growth in speech and hearing clinics in colleges, universities, and hospitals, as well as special emphasis on the teaching of preschool children. This increase in interest in speech and hearing paralleled greater interest in the teacher training centers for teachers of the deaf, which witnessed a trend toward becoming more professional in the educational aspects of deafness.

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*Originally named the Conference of American Superintendents and Principals.

Although at present there are only about a third as many speech and hearing clinics in hospitals as in colleges and universities, the trend is quite apparent for hospitals to supervise such clinics, quite often under the auspices of some department of health. The number of speech and hearing clinics in schools for the deaf has also increased during the past few years.

STATE ORGANIZATIONS

There is a trend for State Department of Education and State Departments of Health to supervise Conservation of Hearing Programs. Sometimes this supervision is direct, sometimes it is through a Division of Maternal and Child Health, or a Division for Crippled Children and Adults. The State Societies of the National Society for Crippled and Adults, Inc., have also increased their facilities extensively during the past few years and are now becoming interested in Easter Seal Summer Camps. It is felt that much training in speech and speech reading can be done effectively in summer camps that have the trained personnel to carry on such a program.

PARENT EDUCATION

Although parent education was formally introduced by the Sarah Foster School for Little Deaf Children in Boston, Mass., in 1887, and has for years been a topic for discussion in educational circles of the deaf, more definite steps have been taken in this area during the past decade. Mrs. Spencer Tracy has done excellent work in this field in her clinic in Los Angeles and through her correspondence course for parents. Some schools for the deaf have had one and two week institutes for parents of deaf children where mothers and their deaf children were both taught. Because of the increase in preschools where children are sometimes taken at the age of two and one half years, parent education has become increasingly important. As parents become more fully aware of what can be done in teaching preschool deaf children, rapid advancement can be made along these lines.

PUPILS

In the January, 1954, *Annals,* 22,100 pupils were reported in schools and classes. Of this number 14,157 were in residential schools, 1,954 in day schools, 4,046 in day classes, and 1,943 in private and denominational schools and classes. Thus, about sixty-five per cent of the deaf students in the United States are enrolled in public residential schools. Enrollments are increasing in all types of schools and classes. Of this total number of pupils, 17,130 were reported as being taught orally, 1,149 as being taught non-orally, and 3,798 as being taught by the Combined Method. The January, 1954, *Annals,* also states that 8,007 were taught with Group Hearing Aids and 5,105 with Individual Hearing Aids. Each year since the *Annals* began reporting, the number of students being taught with hearing aids has shown an increase. To an extent, this parallels the increase in the number of preschool pupils enrolled, 1,899 being reported as under six years of age in 1954. If the preschool groups continue to grow in the future, the total enrollment in schools for the deaf will increase. However, it must be remembered that this does not necessarily indicate more deafness in the nation.

The extra years of schooling for the deaf child, being made possible by the preschool years, may have a tremendous influence on the education of deaf children However, if qualified teachers of the deaf are not available for these pupils during the preschool years, advancement may not be as great as anticipated by some educators.

HIGHER EDUCATION AND THE DEAF

Much attention is being paid at present to secondary education of the deaf. Only a comparatively few state schools provide senior high school instruction.[2] Most day schools and some day classes make provision for their students to attend public high schools for the hearing and give extra assistance in speech, speech reading, and auditory training. Although the Federal government has made provision for college education since 1864, secondary education has not kept pace. The next fifty years should see advancement in this particular field. Some educators have played down the importance of high schools in the past, inasmuch as most of the deaf go into the vocations; today, however, more and more of the vocations require greater academic skills. Also, in the future more deaf people may go into the professions than into the trades, all of which would require a certain background that is best acquired, perhaps, by higher education.

VOCATIONAL EDUCATION

Vocational education, as such, began in the United States in the American School for the Deaf in Hartford, Conn., in 1817. It is probably a safe estimate to say that ninety-five per cent of the deaf in the United States at the present time make their living by some vocation. Although more facilities in higher education may open more of the professions for the deaf, still, the greater number will probably continue to earn their livelihood in this manner. The adult deaf in America have made an enviable record in this field, surpassing the deaf of virtually every other nation in the world, which is a credit to the work being done by the schools and classes in the United States.

MULTIPLE HANDICAPS

In the 1954, *Annals*, 617 deaf pupils were reported as having an additional handicap or handicaps. Of this number 149 were reported as being deaf and aphasic; 73 deaf and blind; 276 deaf and cerebral palsied; 85 deaf and orthopedic; and 34 as having other handicaps in addition to deafness.[3] The entire field of multiple handicaps is a fairly new one as far as education is concerned, although the teaching of the deaf-blind started in the United States about twenty years after the establishment of the first school for the deaf. Difficult as it is to secure teachers for the deaf, the task of securing teachers for the mentally-deficient-deaf, the deaf-blind, is even more difficult. Securing adequate training for such teachers presents a formidable problem.

Undoubtedly children with multiple handicaps are on the increase, inasmuch as infant mortality is on the decrease and the new wonder drugs are keeping alive many handicapped children who, twenty-five years ago would not have survived. Thus, progress in the field of medicine is not being matched by progress in the field of special education, and the future years may well see an accentuation of this problem.[4]

Although at present a few public school systems and a few state supported schools are providing classes for the mentally-retarded-deaf, the deaf-blind, and the cerebral-palsied-deaf, such provisions are not extensive. The next fifty years may see a number of divisions in the average residential and day school for the deaf in order to take care of these multiple handicapped pupils. At the present time one midwestern school for the deaf has a department for the deaf-blind and is making preparations for a division for the mentally-retarded-deaf. One day school for the deaf has almost a hundred aphasic pupils enrolled. The extent of such classes will much depend on the number of people who can diagnose various physical and mental handicaps in children, a work that requires the greatest of skill. Difficult as it is to secure teachers of the deaf, it is still more difficult to secure competency in the diagnostician in the field of multiple handicaps.

Teacher Training Centers

In the nineteenth century, nearly all teacher training was in-service. Today, the training centers for the teachers of the deaf are, for the most part, tending to become affiliated with universities and colleges and are giving college credit. Because of this affiliation with colleges and universities, the subjects being offered are on a more professional status than heretofore. However, because of the excessive present demand for trained teachers of the deaf, teachers are being hired who are not trained or have had only a few courses in the education of the deaf. The question of untrained or inadequately trained teachers of the deaf presents, and will present, an even greater problem in the education of the deaf.[5] More specialized training is required of the teacher in the education of the deaf than of any other teacher in special education, because deafness incurs not only a physical handicap but also an educational handicap. Greater public attention to the entire area of teaching the handicapped, may not alleviate this particular problem in the field of the education of the deaf, as the supply of teachers in the entire field of special education may always remain somewhat limited, relatively speaking, and prospective teachers in the general field of special education may elect to teach handicapped groups other than the deaf, where the educational problem is not so great.

In 1955 twenty-seven centers were training teachers of the deaf, with one hundred and thirty-two teachers of the deaf being graduated. However, the increase in speech and hearing clinic personnel in colleges, medical schools, hospitals, and preschools has tended to absorb many of the teachers who otherwise would be in the classrooms for the deaf.[6]

With the constant increase in school enrollments, the increase in preschool education, and more efficient methods of locating deaf pupils, the problem of teacher recruitment gives every indication of becoming more acute than at present. If every deaf student in the United States were to be enrolled for a full high school education, as is required, in general, of hearing students, the problem of securing qualified trained teachers would be serious. In the January, 1954, *American Annals of the Deaf,* 1,272 pupils were reported as being on the waiting list for schools and classes in the United States and Canada. The number for 1955 is greater. Although some pupils were denied admittance because of the lack of room, generally speaking, admittance was denied because of the lack of trained teachers or because the law in some states does not require attendance in a special school.

In all probability, summer schools for teachers of the deaf and a more extensive use of workshops in schools and classes for the deaf will be important means of meeting the teacher training problem.

CONCLUSION

The next fifty or seventy-five years will probably see greater specialization on the part of the teacher of the deaf in a profession that is already highly specialized. The increase in importance of the work of the speech therapist, the audiologist, and the clinical diagnostician is clearly seen and will become even more important as the field of deafness becomes more highly specialized. In this lies the danger that the general teacher of the deaf, one who teaches speech, speech-reading, auditory training, and subject matter by any of the various methods, may be somewhat relegated to the background.

> It is much easier today, when our schools are necessarily becoming more and more specialized, to forget that the individual deaf child is, after all, a person who must go out into the world and in almost every instance integrate on a moment's notice, all that he has learned in a school for the deaf. In his job he will be confronted with obstacles that require a perfect integration of all that he has learned from his speech teacher, his shop teacher, his reading teacher, his supervisor, his superintendent, his teacher in auditory training, and above all, his language teacher.[7]

It is important for teachers of the deaf to examine critically their highly specialized programs and see if their programs are integrated sufficiently, in order that the same task will not be too difficult for the deaf child when he goes out to work at some job or goes on to high school or college.

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TOWARDS A NEW UNDERSTANDING OF THE DEAF CHILD

HELMER R. MYKLEBUST

The theme of our convention[1] is "Towards a New Understanding of the Deaf Child." This theme implies a past and it declares a change in emphasis for the future. We who have spent a substantial part of our lives in working with the deaf are not ashamed of the progress and accomplishments of the past. Rather, we look upon the past with feelings of satisfaction and assurance. However, as the theme of this 1953 Convention indicates, we are keenly aware that a new interpretation, a new understanding, now is needed.

Of what should this new understanding consist? On what kind of information or on what interpretation should it be based? First, it must be based on an evaluation of our past experience, on an analysis of our achievements and our failures. For example, it is now apparent that in the past we have considered deafness and its implications too narrowly. The problems of the deaf have been interpreted largely in terms of communication—speech, speech-reading, and residual hearing. If the deaf child did not learn to speak and to read the lips, the educational program often was declared a failure. Language has been made *the* problem of the deaf. To state it differently, in the past the problems of the deaf have been defined largely in terms of *communication*. The deaf child's needs have been defined essentially in terms of speech and language. The major thesis of this discussion is that, irrespective of the school of thought or methods used, the problems of deafness have been defined too narrowly. There has been an over-simplification of these problems. What we call *language* has become an *end*, not a means to an end; what we call speech has become an *end*, not a means to an end. Deafness results in an obvious impairment in ability to communicate. This *is* a major problem but it is not the only problem. The obviousness of the communication problem and its importance may be the reason that we have dwelt on it to the relative exclusion of other problems and considerations. We can now state that an essential aspect of a new understanding of the deaf child is that we define his problem more broadly, more realistically, more understandingly.

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[1] Used by special permission of *Annals of the Deaf* (from Vol. 98, No. 4, Sept., 1953), and of Dr. Myklebust, Professor of Audiology, School of Speech, and Professor of Otolaryngology, School of Medicine, Northwestern University. Bibliography omitted.

The Nature of Deafness

This new understanding must be based on *the nature of deafness itself* and its effect on the total organism. With this in mind, let us consider briefly the nature of hearing and non-hearing. Hearing and vision are the distance senses. Normally these senses continuously supplement each other. However, vision is usually directed specifically to the task at hand (foreground) while hearing serves to keep the individual in contact with the total environment (background). This is based on the natural, inherent aspects of hearing and vision. For example, vision is directional—we see only in front of us—while hearing is nondirectional, covering and keeping us in touch with the total environment simultaneously and continuously. Furthermore, hearing functions day and night, while asleep or awake, around corners and in the dark. When one does not hear, it becomes essential to keep in touch with the environment in different ways; the all-directional distance sense is missing. Thus vision, as much as possible, must be used for both foreground and background purposes. In addition, the kinesthetic sense becomes the sense of awareness and warning. Vibrations are felt, then the sense of seeing is directed to explore the situation further. Instead of hearing and vision, the supplementing senses now become kinesthesis and vision. However, kinesthesis is a much less effective sense than hearing for contact and exploratory purposes. This means that it is more difficult really to know the environment well when one does not hear. It is more difficult to explore the environment. There are always discrepancies between what an individual thinks the environment is like and what it is really like. But when the individual is deaf this discrepancy is likely to be greater. Another way of stating this phenomenon is that there is always a real world and the world as we see it. Even those of us who have all of our sensory capacities have difficulty at times in accepting the environment as it is. It is becoming apparent, and the new understanding of the deaf child must emphasize, that it is very difficult to know what the real world is like when you do not hear; it is easier when you are deaf to accept distortions on the basis of misconception. We must emphasize that deafness is a significant and consequential sensory deprivation.

It is the purpose of this part of our discussion to emphasize that deafness causes the individual to behave differently. The entire organism functions in a qualitatively different manner. This shift in behavior and adjustment is compensatory in nature. When a basic sensory privation, such as deafness, occurs, the organism must make changes in its functioning in order to meet the environmental demands and to survive. Deafness does not simply cause an inability in verbal communication. It causes the individual to see differently, to smell differently, to use tactual and kinesthetic sensation differently. And perhaps more important than all of these, but because of them, the deaf person perceives differently. As a result of all these shifts in functioning, his personality adjustment and behavior are also different. To say that the deaf person is like the hearing person except that he cannot hear is to oversimplify and to do an injustice to the deaf child. His deafness is not only in the ears, it pervades his entire being. Important as ability to use spoken and written language may be, the new understanding must emphasize that we are missing the basic effect of deafness when we do not see the much more pervasive manner in which deafness is consequential. To see this is not to be pessimistic, it is not to be hopeless. It is to see deafness for the severe organismic deprivation which it is. Not to be dismayed by what we see, not to deny it, but to take steps on the basis of this new understanding to alleviate these multiple ways in which deafness is affecting the individual. The program then is broad, not narrow. It varies according to the individual needs of the children; it considers basic differences such as age of onset, etiology, degree of deafness, personality differences, but it has as its objective the alleviation of the total basic organismic deprivation which is consequent, especially to severe deafness, from early life.

Research Findings

The new understanding of the deaf child should be based in part on our past experience and on the nature of deafness itself. This new understanding, also, should be based on current findings of research. Some research data which seem to illustrate and strengthen the comments which have been made will be presented briefly. For example, it was stated above that deafness is not simply an inability to communicate normally. Rather, that the effect of deafness is pervasive and consequential in regard to the total functioning of the individual. One of the ways in which to verify such a statement is to measure various aspects of the individual's behavior. This has been done by many educators and other scientific workers in the field. A review of this work cannot be given here. Rather, specific research results covering various areas of the behavior and functioning of the deaf have been selected for presentation. The primary purpose of selecting these data is to suggest the importance of considering the problems of deafness in a broader frame of reference than that which has been common in the past.

Motor Capacity

Various workers have studied the motor capacities of deaf children. In general these studies have been concerned with specific aspects of motor functioning such as balance and manual dexterity. Few studies have evaluated the organism motorically as a functioning unit. To study the motor capacities of deaf children more broadly the Ozeretsky Tests of Motor Proficiency were administered to a group of 50 children, 30 boys and 20 girls. The average age of the boys was 11 years and 3 months and for the girls 10 years and 11 months; there was an age difference of four months (in favor of the boys) between the sexes. The results of this pilot study are presented in Table I.

These results must be considered tentative but they suggest that deaf children have difficulty with certain aspects of motor functioning as compared to normally hearing children. They are essentially equal to hearing children in dynamic manual ability (manual dexterity) and in synkinesia (overflow movements). However, differences seem to be present in all of the other

TABLE I
RESULTS FROM OZERETSKY TESTS OF MOTOR PROFICIENCY
ON 50 DEAF CHILDREN (30 BOYS AND 20 GIRLS)
(Average C.A. 11-3 for boys and 10-11 for girls)

	Boys	Average Retardation	Girls	Average Retardation
Average Motor Age	9-5	1-10	9-5	1-6
General Static	8-11	2-4	8-4	2-7
Dynamic Manual	10-11	0-4	10-9	0-2
General Dynamic	9-8	1-7	9-9	1-2
Speed	6-11	4-4	7-10	3-1
Simultaneous Movement	8-9	2-6	9-4	1-7
Synkinesia	10-4	0-11	10-4	0-7

areas measured, with the greatest retardation occurring in the area of speed of motor movement. In general the boys seem slightly more retarded than the girls but the areas of greatest retardation are the same for both sexes.

In another study of the motor capacities of deaf children, the Health Rail-Walking Test was used. This test measures generalized loco-motor coordination. The task is to walk three rails of decreasing widths in a heel to toe manner. This test was given to two groups of deaf children. All of the children above six years of age in an Eastern and a Mid-Western residential school for the deaf were included. The results were then compared with the norms for normally hearing children on the Heath Rail-Walking Test. These results are given in Table II.

TABLE II
SCORES FOR DEAF AND HEARING CHILDREN ON THE HEATH
RAIL-WALKING TEST

EASTERN SCHOOL

	DEAF				HEARING*			
	N	Mean C.A.	Mean	S.D.	N	Mean C.A.	Mean	S.D.
Males	105	13.0	73.8	18.2	41	13	106.1	32.1
Females	98	13.0	59.1	14.5	50	13	93.0	26.0

MID-WESTERN SCHOOL

	N	Mean C.A.	Mean	S.D.
Males	40	12.8	72.5	15.4
Females	31	12.4	56.8	6.6

*Data for hearing children supplied by S. R. Heath, Jr. (Differences between the Deaf and Hearing significant at the one per cent level.)

The results from the use of the Heath Rail-Walking Test, like the results from the Ozeretsky Test, indicate that the deaf children have motor difficulties. It is interesting that the results from the two schools for the deaf are in very close agreement. Furthermore, the difference between the sexes is approximately the same for both the deaf and the hearing; the boys are superior in both instances. The data presented in both Tables I and II suggest that the deaf children in residential schools are different from hearing children in motor capacities. These differences, however, are not present in all types of motor activities. On the basis of experience and from research evidence it seems that deafness does affect the organism motorically. The reasons for a relationship between deafness and motor functioning seem to include both psychological and organic factors. Progress is being made in studying these inter-relationships.

PERIPHERAL VISION

Another area which needs attention and further study is peripheral vision. Peripheral vision means primarily visual acuity. Recent studies have revealed that the incidence of poor vision in a population of deaf children significantly exceeds that which is expected in a comparable group of hearing children. These data are being analyzed and prepared for future publication. The reason for this higher incidence of impaired vision probably is that when diseases, accidents or congenital deficiencies cause hearing impairment, there is a greater probability that the child also will have some impairment of vision. Attention to the impaired vision of deaf children must be considered one of the aspects of the new understanding.[2]

INTELLECTUAL CAPACITY

The third area to be mentioned in connection with the pervasive effects of deafness is that of intellectual capacity. Approximately 30 years ago Dr. Rudolph Pintner asked the question—"Are deaf children inferior in intelligence?" As you know, Dr. Pintner came to the conclusion that deaf children were inferior in intelligence. However, during the past 15 years various workers have uniformly concluded that if non-language tests of intelligence are used, deaf children are not generally inferior in intelligence. It is interesting that, after this conclusion was reached, most of us again over-simplified the problem. We made the direct inference that if the deaf child is *quantitatively* equal to the hearing child in intelligence, then he is also *qualitatively* equal to the hearing child in intelligence. We are now aware that this inference does not necessarily follow. What do we mean? We mean that it is becoming clear that deaf children should not be considered inferior in intelligence as compared to the normal. However, the use of their intelligence, that is, the qualitative aspects of their perceptual and conceptual functioning, and their reasoning, does seem to be different. More research evidence would be helpful in clarifying the nature of the intellectual capacities of children who have sustained deafness in early life. Currently it can be stated that it is difficult for him to live up to the potential of his intellectual capacity. It is difficult for him to use his intelligence in as broad and in as subtle and abstract a manner as the hearing child. The data given in Table III illustrate the quantitatively normal intelligence of deaf children when performance tests are used and the reduction in score when verbal tests are used.

The verbal scores were derived from the five sub-tests of the verbal part of the Wechsler-Bellevue test and the performance scores were derived from five sub-tests of the performance part. Further analysis of these results revealed no differences between the sexes and no differences between the exogenous and endogenous on either the verbal or performance scores. The performance scores are average for all age levels. In general the verbal scores fall at approximately two-thirds of normal and show only slight progression from twelve to seventeen years of age.

TABLE III
RESULTS FROM ADMINISTERING THE WECHSLER-BELLEVUE INTELLIGENCE TESTS TO DEAF CHILDREN

AGE	N	VERBAL SCORE		PERFORMANCE SCORE	
		Mean	S.D.	Mean	S.D.
12	18	64.6	14.3	102.2	15.1
13	16	60.6	11.4	104.8	13.2
14	16	62.6	14.7	98.5	14.8
15	15	69.9	12.0	102.0	14.5
16	10	73.5	13.6	100.5	12.1
17	10	70.9	10.8	103.0	9.9
Total	85	66.5	13.7	101.8	14.5

SOCIAL MATURITY

An area which manifests directly the pervasive effects of deafness is social maturity. Social maturity means the extent to which an individual achieves independence; the extent to which he learns to care for himself and assists in caring for others. The scale most useful for measuring social maturity is the Vineland Social Maturity Scale.

The infant gradually learns to care for himself. He gradually learns to feed himself, to care for his toilet needs, to dress himself, and to earn for himself. How does the deaf child compare to the hearing child in this development of independence? Research on social maturity is suggesting rather definitely that the deaf child matures and acquires independence more slowly than the hearing child, and that he remains somewhat retarded as compared with the average even at adulthood. This research on social maturity illustrates what is meant by the difficulty which the deaf child has in realizing his inherent potential. It has been stated that the deaf child is not quantitatively inferior in intelligence, but when we consider his ability to assume responsibility for himself and to function in an independent manner, we find that it is more difficult for him to achieve this type of social behavior than it is for the hearing child. This means that deafness causes social immaturity. Deafness causes an individual to be more dependent on his parents and on other members of society. This is a significant problem because some deaf people realize that they are more dependent on others and because of this dependence they consider themselves incapable and inferior in general. One of the basic tasks of the educator, and of other specialists, is to help the deaf person to accept a certain type of dependence, but to realize that such dependence does not mean generalized inferiority.

The new understanding of the deaf child must include the awareness that he has greater difficulties in achieving independence and social maturity. By implication this means that teachers and educators everywhere must be concerned with programs which will help him to overcome these difficulties to the greatest extent possible. However, part of the new understanding should include a willingness to accept the limitations of deafness for what they are and to help the deaf person to live happily with these limitations. There is no way in which the effects of incurable deafness can be completely circumvented. True acceptance of deafness and its limitations is a basic step toward the new understanding of the deaf child.

Visual Perception

By perception is meant the understanding and interpretation of sensory experience. For example, sounds which are heard must be interpreted. Sounds which are not interpreted are at the level of what is referred to as sensation. Interpretation of sensation is perception; perception is the process of making sensory experiences meaningful. The perceptual process seems to become highly automatic. Some refer to this process as being primitive. In any event, the perceptual process, that is, the interpretation of sensory experience, is highly automatic and essentially habitual at a very early age. It has now been well established that intersensory perception is common in the normal individual. In other words, what we are seeing is interpreted partially on the basis of what we have heard, whether what we are seeing is producing a sound or not.

Auditory experience assists us in interpreting and evaluating visual experience; likewise, we are assisted in interpreting both auditory and visual experience by tactual, kinesthetic, olfactory and gustatory experience. Furthermore, all of our sensory experience is related to sensations from within. For example, sensations of hunger, thirst, and pain, all must be perceived, interpreted and related to our sensory experience. In brief, this is what is meant by the intersensory perceptual functioning of the human being. In recent years one of our interests has been this area of perceptual functioning and behavior. Therefore, during recent years a study was made of the visual perception of deaf children; their perceptual functioning was compared with hearing children.[3] The results of this study have proved to be challenging and revealing. In general the conclusion was that the deaf child has more difficulty interpreting visual experience than does the hearing child.

Perhaps this can be stated better through the use of an example. The results suggest rather definitely that the picture of a bell, or a drawing of a bell, is more difficult to interpret visually when one has never heard a bell. Another example is that rain that does not patter as it strikes the window is qualitatively and experientially different rain. When visual experience is not supplemented by auditory experience, the visual experience itself is different. This means that the perceptions of the child who does not hear are qualitatively different from those of the child who does hear. The implications of these findings are far reaching. In general, the implications are that the deaf child should be given specific training in perception. He should be trained to use all other senses to supplement the visual sense, because the visual sense is his basic distance sense. Beginning reading material especially should be planned on the basis of his visual perceptual difficulties.

From the point of view of the pervasive effects of deafness this is perhaps one of the most fundamental and consequential ways in which deafness is manifested. Perceptions are the basis of concepts. One of the reasons that we are finding that the deaf child is more concrete, that is, his mental processes are less abstract than the hearing child's, may be that the deaf child has more difficulty in structuring and clarifying his perceptions. It is entirely reasonable and logical to assume that this qualitatively different perceptual experience of the deaf child is a basic problem in all of the deaf child's adjustment and behavior. It can be expected to be related to his progress in all ways, academically, vocationally, socially, and emotionally.

PERSONALITY AND ADJUSTMENT

It seems logical that a sensory deprivation as great as deafness would affect the personality adjustment of the individual. Various studies have indicated that this is true. Furthermore, increasing clinical experience in making differential diagnoses of deafness, aphasia, emotional disturbance, and mental deficiency in preschool children indicates that deafness in early life significantly alters the behavior of the young child. To study these effects of deafness in adulthood personality tests were administered to the students of Gallaudet College[4] and to a comparable group of individuals through the Chicago Hearing Society. Extensive statistical analysis of these results has been accomplished. The Gallaudet group consisted primarily of individuals with severe hearing losses sustained from birth or early infancy. The Chicago Hearing Society group consisted largely of individuals who were considered hard of hearing and who sustained their hearing losses during early adulthood. Only major conclusions of this study can be given here. The findings are highly conclusive in suggesting marked difficulties in adjustment. The Gallaudet group is significantly inferior to the Hearing Society group. Both groups deviate substantially from the norms. However, the earlier in life deafness occurs, apparently the greater the effect on adjustment. The point of view that if an individual has never heard, he does not know what he is missing and, therefore, there is no effect on personality, is not supported by this study. Rather, the longer one hears, the less effect on adjustment is a more tenable statement. Moreover, women show less ill effects than men and this is true for both groups.

This study substantially verifies the statement made at the beginning of this discussion, to the effect that it is more difficult for the deaf child to understand and to form a close contact with his environment. It seems that when deafness occurs early in life it is extremely difficult for the person to be realistic about the world in which he lives. He tends to withdraw from the world and to develop an internal, a fantasy world of his own. All that has been learned about mental hygiene suggests that this is undesirable. Again we find that the conclusions of research are highly stimulating and challenging. The new understanding of the deaf child must include the awareness that he is making only a partial adjustment to his environment. His deprivation of hearing precludes his establishing mature relationships without much compensatory effort. Although deaf children in general compensate by using the kinesthetic sense to supplement the visual sense, it is apparent that such compensation is only partially effectual.

The nature of hearing and non-hearing, the psychology of deafness, is gradually being clarified. It is obvious that the teacher and the educator should be more aware of the deaf child's difficulty in maintaining normal, healthy attitudes and feelings. Furthermore, it is clear that no school for the deaf can overlook the fact that the deaf child needs much more psychological and psychiatric assistance. No school for the deaf can be considered to be meeting the demands of the new understanding of the deaf child without providing these services. These services should not be simply diagnostic but they should include remedial and corrective work. Programs of psychotherapy, perceptual training and social adjustment should be included in all training which is presuming to meet the demands of the new understanding of the deaf child. Over-simplifying or denying these problems will not help the deaf child nor will it foster the new understanding of him.

Emphasis on the pervasive effects of deafness should not detract from the achievements of the deaf. It is a tribute to deaf people that despite these effects, they continue to be effective contributors to society. Recognition of the organismic manner in which deafness is influential can be expected to help deaf people achieve even greater independence. Certainly they must be complimented for the way in which they care for themselves.

One of the primary concerns of the new understanding of the deaf child should be the total happiness of that child. Happiness comes from freedom from anxiety, guilt, and insecurity. It is apparent that the deaf child must be assured over and over again that the real world is all right. He must be assured and reassured. He must be told and retold. He must be made to *feel* that *he* and the real world are all right, and that he has a place in it. In order for him to feel this his parents and his teachers must feel it.

There is no area of endeavor which is more rewarding than that of working with deaf children. Much progress has been made. Through the new understanding, critical steps of progress during the next few years are assured. Study and understanding of the deaf child will continue to be revealing and meaningful to the understanding of all children and to the understanding of human behavior in general. These are some of the rewards of working toward a new understanding of the deaf child.

FOOTNOTES

1. This paper was originally presented as the keynote address at the meeting of the Convention of American Instructors of the Deaf, June, 1953.
2. An adaptation of the Keystone Visual Survey Test for deaf children is available from the Keystone View Co., Meadeville, Pa.
3. Indebtedness is expressed to Dr. Daniel T. Cloud, Supt., New York School for the Deaf, White Plains, N.Y., for his cooperation in this study.
4. Indebtedness is expressed to Dr. Leonard M. Elstad, Pres., Gallaudet College, and to Mary Thompson, Dir., Chicago Hearing Society, for their cooperation in this study.

EVALUATING THE INTELLIGENCE OF THE DEAF

GEORGE LAVOS

In educational and vocational planning and training, modern techniques call for an evaluation of a child's intelligence. Intelligence testing has been extended throughout guidance and education, including those of the deaf. The early attempts at testing the deaf used a verbal test of the Binet type, first transcribing the spoken portion into written form and, when this was found unsatisfactory, translating the test into signs and finger spelling. The language structure of the test and the verbalized imaginative situations in the items interfered too extensively with a literal and even simplified translation.

A Variety of Tests

The need was for a test which did not require language to instruct the pupil in his tasks, did not require him to use language to carry them through,[1] and did not require a language response. A variety of tests, more or less meeting these criteria, have been offered, including the Pintner-Paterson, the Arthur Performance Scale, the Leiter International Performance Scale, the Cornell-Coxe Performance Ability Scale, and the performance portions of the Wechsler scales for adults and children. An English investigator used the Anderson Performance Scale. While the foregoing were standardized on and designed for hearing children, pantomime directions can readily be given to the deaf and they already meet the two of the criteria stated at the end of this chapter.

A few tests are designed for specific use with the deaf. The Ontario School Ability Examination is one, being adapted from existing material, some extensions made, and tried out on the deaf. Age standards in the test are derived from hearing children, but instructions are given for pantomime directions. The Hiskey Nebraska Test of Learning Aptitude represents a departure in test construction for the deaf. Hiskey analyzed classroom activities of young deaf children from a learning point of view and standardized tests for these activities basing his norms on over 400 deaf children. An English scale, the Drever-Collins Performance Tests, was also developed for use with the deaf and standardized on them. Two tests, adapted from existing tests, have been used at Central Institute for the Deaf but not elsewhere.

These tests are of the manipulatory, performance, concrete type consisting of form boards, puzzle pictures, block construction, copying visual perceptions of form and motion. Scoring is based on what is done with the material.

Several group tests are available which meet the three criteria, some in their entirety and others with slight modification. These tests consist of drawings on paper, either depicting objects in the environment of children or geometrical figures, and involve no equipment apart from a pencil for marking the answer. The first of these used with the deaf was the Pintner Non-Language Mental Test, now available as the Pintner General Ability Tests: Non-Language Series, Intermediate Tests, and containing special directions for pantomime administration, extended timing, and an adjustment in scoring for the deaf although it was not standardized on the deaf. The Chicago Non-Verbal Examination contains norms and directions for pantomime administration although it, too, was not standardized on the deaf. The Revised Beta Examination can be easily given to older deaf because of its many samples and easily demonstrated instructions. A new group test was recently announced by Du Toit from South Africa,[2] in which the content was determined by a careful statistical analysis. Norms were obtained from the criterion test, a language scale, and are based on hearing children.

Several investigators have made use of tests involving only one kind of capacity and not standardized on the deaf. The Goodenough Draw-a-Man test has been used extensively with the deaf and there are reports available of the use of Porteus' mazes and Raven's progressive matrices. It is interesting to note that Du Toit's analysis resulted in rejection of the Draw-a-Man and a maze test, but acceptance of the matrices.

In offering these tests, the authors were of two camps on the nature of the intelligence measured. For some the non-language test, whether of the performance or 'drawing-on-paper' kind, was a *supplement* to the language test of the Binet type in a more global view of intelligence. Others sought to duplicate in a non-language medium tasks measuring the same mental processes that language tests measure. The drawing took the form of pictorial analogies and absurdities translating word analogies and absurdities. Disarranged pictures duplicated disarranged sentences, and so forth. Tests based on this approach were to be considered *substitutes* for the language test.

This clash in purpose can be, to some extent, resolved by reviewing the data on the relationships between these two types of non-language test and the parent language intelligence test. Although the data pertaining to the relationships are based on results from hearing children, they should be kept in mind in the summary of the intelligence of deaf children and in the clinical applications of non-language tests insofar as we expect deaf children to respond to an ordinary language environment in a linguistic way. Comparing the 'drawing-on-paper' tests and the performance tests with language intelligence tests, the former are more closely related to the language test than are the latter. The performance test is more concrete and less abstract in its tasks than the 'drawing-on-paper' test. The two types do not relate as well to intelligence measured in an ordinary language medium among older children as they do among younger children. The two non-language tests do not differentiate among older, more capable children as well as they do among younger, less capable children.[3–4]

With deaf children the supplemental tests, of either type, have become the substitute and results from such tests are interpreted with the same import for school adjustment of deaf children that language tests carry for hearing children. No work has been done to adapt language tests to the deaf since the failure of the early investigators. There has been, however, dissatisfaction voiced with the continued use of non-language tests with the deaf.[5–6]

Results of Summaries

Pintner listed these probable mean intelligence quotients for the deaf after reviewing all data to 1940: performance tests, 91; 'drawing-on-paper' test, 86; and the Draw-a-Man test, 88. He made an overall evaluation of a ten-point inferiority of the deaf in comparison with the hearing. He pointed out, however, that this mean difference should not blind us to the overlapping of the distributions of the quotients of the two.[7]

Myklebust said the "during the past fifteen years (i.e., prior to 1953) various workers have uniformly concluded that . . . deaf children are not generally inferior in intelligence as concluded by Pintner." He pointed out that, in spite of the quantitative equality, qualitative differences still exist in perceptual and conceptual functioning and in reasoning.[8]

Although no studies as extensive or as well controlled as those upon which Pintner based his summary have since appeared, there are a few studies of a restricted nature. Two reports using Raven's matrices, an abstract 'drawing-on-paper' test measuring one capacity, were published[-910] and three employed performance tests.[11–13] None has been made using a comprehensive type of 'drawing-on-paper' test. Other studies have been published in which deaf were compared with hearing on variables other than intelligence. In some of these, deaf and hearing were matched in intelligence which would be valueless as a survey,[14] while others sought to study the relationship between two intelligence tests or other variables, again not surveying intelligence.[15] In a few instances studies of this type do survey intelligence to an acceptable degree and can be included.[16–17]

Of the two investigators who used Raven's matrices, one found that young deaf children were retarded. 1 to 3 years and older more when compared with hearing, and the other substantiated the general trend of these data.[18–19] The representativeness of the groups studied was not clearly shown. The performance tests indicated somewhat different trends. Albright,[20] testing 130 pupils enrolled in a day-school, aged 6 to 18, secured a 95 mean quotient on the Ontario. Capwell, using the Arthur in a residential school, reported an approximately normal distribution.[21] Hood obtained a 99 mean quotient for 401 children, 8 to 12 years of age, on the Anderson Performance test.[22]

Among those in which intelligence assessment was an incidental but acceptable aspect to another purpose, Johnson reported a 97 mean quotient on the Chicago for 188, 12 to 24 year old deaf in a residential school,[23] and Knieval an identical mean for the same test for 21 years olds in a similar school.[24] Johnson reported she tested 74% of the enrollment in the age range and that no selective factor operated except illness and related reasons, while Knieval tested all boys in the age range. Burchard and Myklebust tested 189 pupils, ages 7 to 19, with the Arthur Performance Scale securing means of 102 for congenitally deaf pupils and 101 for acquired in a residential school.[25]

These later results are somewhat higher than those summarized by Pintner, but a direct comparison is made difficult by the fact that the non-language tests used do not discriminate well among older children thus inflating the mean quotients. Other factors which make difficult a final statement for those studies summarized by Pintner and those carried on later are: some studies are very inclusive, while others are limited to a single school, especially those after 1940; differing exclusion policies of the schools involved may result in selection among the pupils; means and medians are not interchangeable in skewed distributions which seem to characterize those of deaf children; pupils within a school selected for a special study apart from intelligence are not representative with respect to intelligence; numerous different mental ability capacities are assessed without due regard for their interrelations and without knowledge of their relations to the maturation of the children; standardizations of the tests used differ and equivalence of results among them is unknown; competence of the examiners in handling deaf children may vary since colleges do not offer training in this special field and examiners 'pick up' their skills, seldom doing their testing as experienced workers with the deaf; there may be motivational differences of group vs. individual tests since deaf are largely educated via an individual method; the same subtests are used in several tests bearing different names; and there is a lack of restrictive methodology in comparing deaf and hearing children.

While it appears that the deaf approach the hearing on performance tests, the matter of 'drawing-on-paper' tests is still open although the trend is toward a lower capacity on these more abstract tests. A definitive study using adequate scales of both kinds with matched groups and testing obtained differences with modern statistical procedures is needed.

Clinical Applications

Few studies have applied intelligence tests to school problems. While the surveys probably resulted in a revised school planning for some pupils, little has appeared in describing this crucial use of tests. Two investigators have commented on their use of tests with those who were not successful in their school work. Bridgman said that children with quotients of 80 or less "on a non-verbal scale will probably have great difficulty in academic subjects."[26] Birch and Birch stated that a sign of academic ineptitude would be an Arthur or Nebraska quotient 20 points higher than a Leiter quotient on the grounds that the Leiter test is more closely related to the Binet test than either of the other two.[27] It must be kept in mind that only children with difficulties in school learning were referred for testing. There may have been other children with the same intelligence characteristics who were successful in their school work.

In order to evaluate the relation between two tests, especially designed for the deaf, and a criterion test found useful in clinical work with hearing children, results on the Ontario and the Nebraska were compared with those on the Stanford using 49 hearing children, 5 to 11 years old, as subjects. These children scored highest on the Binet, next on the Ontario, and lowest on the Nebraska. When the Ontario and the Nebraska were given to 49 deaf children in the same age range, the deaf scored higher on the Ontario than on the Nebraska. The difference between the means of the Ontario and the Nebraska was statistically reliable for both hearing and deaf groups but, with the hearing, the difference between the Binet and the Ontario was not. The Ontario appears to give higher quotients than those from the Nebraska, and these are closer to those of the Binet than the Nebraska.[28] Amoss in describing an initial use of the Ontario with hearing children said that there was close correspondence with the Stanford-Binet for 6 to 11 year olds and a five-point lesser correspondence with older retarded, the older retarded scoring higher on the Ontario because of the increased language emphasis of the Stanford-Binet after the ninth or tenth year level.[29]

In a limited but pertinent study, Graham and Shapiro analyzed the effect of pantomime directions in administering the performance part of the Wechsler Intelligence Scale for Children ordinarily given through hearing. After equating 20 deaf children with two groups of hearing children, 20 in each, on intelligence (using the Draw-a-Man), health, sex, color, age and nativity, the Performance Scale of the W.I.S.C. was given. The deaf and one group of hearing children were given the test in pantomime. The second group of hearing children, used as the control group, was given the test through hearing as usual. Of the three groups, the hearing control group had the highest mean. The two groups given pantomime instruction averaged lower, the hearing pantomime group significantly so when compared with the control group. The deaf averaged higher than the hearing pantomime group but not significantly so. The mean of the deaf group was five I.Q. points lower than the control and the hearing pantomime group was six points lower than the control group. In view of this trend, the investigators suggested that a correction factor be developed to nullify the effects of pantomime directions.[30] It is pertinent here to point out that Pintner provided, in the norms for the deaf on the Non-Language Test, Intermediate Series, a correction factor, especially for those scoring low.[31]

In line with the apparent difficulty of using pantomime directions is a report by Johnson. In analyzing the effect of academic or symbolic level on intelligence quotients among the deaf when given the Chicago, she found that the deaf child's ability to respond to the test adequately at younger age levels was hampered by his lack of symbolic skill when compared with hearing children of like age.[32] Although the Chicago is planned to be given either through hearing or by pantomime, the norms for the pantomime directions start at an older age than those for the auditory directions.

While no sex differences were reported by other investigators, in an analysis of the use with the deaf of the Revised Beta Examination, a 'drawing-on-paper' test, a significant sex difference in favor of the boys was found. The sexes had been equated with regard to intelligence on two other scales, the Chicago and the Pintner Non-Language, and consequently the sex difference on the Beta appeared to be a resultant of the nature of the test content, which was masculine in import. The Beta manual indicated that the test could be used with hearing women, although it was not standardized on them. From the analysis of the use of the test with the deaf, it was concluded that the test was not to be used with deaf girls unless it was specifically standardized on them.[33]

In summarizing these applications, these trends seem significant. Of two tests designed for the deaf, the Ontario and the Nebraska, the Ontario seems to give results closer to those obtained on the Stanford-Binet when the three are used with hearing children. Pantomime directions, possibly in the form of poorly differentiated symbols, seem to hamper subjects even when the subjects have such communication as a pattern. While no sex differences have been reported, one test, usable with the deaf, seems to favor boys by the nature of its content.

In any clinic program, retesting with the same or another test is often necessary for verification of the diagnosis. Retesting studies have been carried on to some extent. The quotients obtained from retesting with the same test or from two separate tests seem relatively well correlated although not so well that quotients from the same test after an interval of time has lapsed have the same significance or that quotients from different tests can be used interchangeably. A coefficient of .81 was obtained for a retest with a 'drawing-on-paper' test (the Chicago) after an interval of three years,[34] and one of .87 in a retesting with the Nebraska.[35] Coefficients between different tests were somewhat lower, as would be expected. A coefficient of .72 was cited between two performance scales given 3 to 12 years apart,[36] .74 between the Nebraska and a performance scale,[37] and one of .84 between the Nebraska and the Ontario given at the same time.[38] Coefficients ranging in the .60's were cited for pairs of three different 'drawing-on-paper' tests for intervals of time ranging from eight months to over six years.[39] One of .65 was reported between the Arthur and the Chicago, a performance and 'drawing-on-paper' pair given at the same time,[40] and another of .61 for a similar pair,[41] while the Goodenough Draw-a-Man test and the Pintner Non-language Mental Test netted a .32 coefficient when given together.[42] The time lapse between testing was not always clearly indicated; consequently, an analysis by time interval as well as by type of test was not possible.

In general, identical tests correlate highest, in the .80's; individually given different performance tests, in the .70's; group given, different 'drawing-on-paper' tests with considerable time lapsing between testing, in the .60's; and performance and 'drawing-on-papers' tests, in the .60's. The forecasting efficiency of these coefficient ranges from 20% to 50% better than chance.

If these coefficients are considered alone, a group-wise gain or loss in intelligence quotient between the first and second testings would be obscured by reason of the statistical nature of correlation. While there is to be expected a normal variation from one quotient to another, acceptable within ± 7 intelligence quotient points in one study,[43] there may be significance for the clinician in a major upward or downward movement of quotients with the passage of time. Lane reported[44] that, although 22% of her 99 subjects had a lower quotient on the second testing of a performance scale, 20% gained 20 points or more and 32% gained from 10 to 19 points, — 52% showing greater than a 10-point gain after a considerable period of time. Lavos found a similar trend[45] with a statistically reliable higher quotient on the second testing with the same test, the Chicago, after an interval of three years for over 130 pupils.

Another study[46] also substantiated the finding that, when deaf children were retested on the same performance scale, gains outweigh losses to a greater extent than expected.

In the investigation of the retest characteristics of the Chicago it was found that sex, age at the time of the second testing, and means of communication were not associated with gains, but that intelligence status on the first testing was, the greatest gains being made by those in the 70 to 89 range. It is possible that, in comparison with this low average group, those scoring higher would not gain proportionately as much from their greater ability to symbolize because they already had sufficient capacity to cope with the relative difficulty of the test, and those scoring below possessed only the abilities necessary for a minimal score but insufficient to profit significantly from growth in the interval between testings.[47] While the explanation for this trend toward higher second quotients is varied,[48] the fact remains that retest quotients are necessary in educational and vocational planning.

Other reports showing the relation between intelligence test scores and other capacities among the deaf are available. These may be grouped under educational achievement, communication skills, mechanical ability, and social competence.

The first study relating non-language intelligence and educational achievement was carried on by Brown.[49] He found no relation between the reading portion of the Stanford Achievement Test and a performance and a 'drawing-on-paper' test. He did find a positive but limited relation between the two intelligence test results and combined arithmetic computation and reasoning scores. A coefficient of .45 was found for the Pintner Non-language and one of .37 for the Arthur Performance Test. Albright's report corroborated to a partial extent Brown's findings. Between a reading test and mental ages on the Ontario she did not find a statistically verified relationship. She did find, on the other hand, that mental age correlated significantly, .42, among children in the higher grades with average standing on the Stanford Achievement test.[50] Lane, as well as Albright, found evidences of a general trend of a positive relation between eventual school achievement and performance intelligence.[51] No child with a quotient above 110 failed to complete the eighth grade and no child with a quotient below 110 was able to graduate from college. She concluded with the statement that "performance tests . . . furnish an index of the possibilities of the deaf child" in school accomplishment. In another report, she showed that deaf children with quotients on performance tests ranging from 120 to 139 have higher results on a standardized educational achievement test over a period of several years than those with quotients in the 70 to 89 range. The difference between the two groups was heightened after the fifth grade level.[52] Another study reported a correlation of .41 between the Pintner Non-Language test and a test of proper language expression especially designed for the deaf.[53] This correlation coefficient was significant, and regarded by statisticians as being somewhat substantial. Pugh[54] reported data which have a related bearing on the present topic. Using a language group test of intelligence, the Otis, with the deaf (which is in essence an evaluation of reading ability combined with language intelligence when used with the deaf) and several 'drawing-on-paper' and performance tests, she reported correlation coefficients of a relatively low order but statistically significant. The coefficients between the Otis and the Pintner-Paterson and Arthur performance tests were .21 and .29 respectively, while those with the Chicago and the Pintner 'drawing-on-paper' tests were higher, .32 and .43 respectively.

As a general conclusion, there is a positive relationship between non-language intelligence test scores and educational achievement. The relationship is low, not more than 20% better than chance. Comparing the performance and the 'drawing-on-paper' tests, the latter are somewhat more closely related to educational achievement duplicating array between such tests and tests of language intelligence.

As a summary thought, the logical distinction of necessary and sufficient conditions may be applied here. From the relatively low order of positive relationship between educational achievement and non-language intelligence, the test measures skills in deaf children which are necessary for their educational growth but insufficient in themselves to control such growth in any major way.

Apart from educational achievement, intelligence has been related to only a scattering of other abilities in deaf children.

Intelligibility of speech of deaf children bears no relationship to their intelligence on a 'drawing-on-paper' test. And the same conclusion can be reached about the relation between intelligence and speech reading ability. These relationships hold true for older deaf children who are a selected group.[55]

The relationship between the Pintner 'drawing-on-paper' test and parts of the Minnesota Mechanical Ability Tests was obtained in a study by Stanton.[56] The coefficients were of the highest order found between any non-language intelligence test and other variable in the deaf child. Even some of the pairs of non-language tests did not correlate as high. These coefficients for deaf boys and girls ranged from .22 to .75; of six relations, five were .44 or better for the boys and .38 or better for the girls. The coefficients for deaf boys were higher than for matched hearing boys, but this array did not hold true for the girls. The coefficient between the mechanical test and language intelligence among the hearing was .13, much less than for the non-language and the mechanical test.

Coefficients of correlation between intelligence and social competence as measured by the Vineland Social Maturity Scale have been computed by a number of investigators. For day-school pupils of a wide age range, the coefficient was .29,[57] and for the residential pupils somewhat higher, .38,[58] while for young deaf children it was considerably higher, .84 with the Nebraska test and .91 with the Ontario.[59] Since the former studies included children of a wide age range and that of the latter a much more restricted and younger group, the heightened coefficients in the latter may be due to the fact that the effects of deafness on social maturity may not have been felt as yet in their relationship to intelligence.

Relationships between non-language intelligence and personality adjustment among the deaf have been included in several reports.[58,60–61] Negligible positive correlations exist between inventories of personality adjustment taken by deaf children and "drawing-on-paper" tests. Ratings by others, chiefly teachers, of behavior problems and intelligence among deaf children were also weak and neglible. These coefficients did not exceed 5% better than chance.

In summarizing this review of the relationship between non-language intelligence and other variables in deaf children, the following would be the order of the relationships. Highest is the relation between non-language intelligence and mechanical ability, followed by educational achievement; communication skills unique to the deaf, and self-rated and other-rated personality adjustment are not related to non-language intelligence.

INTERPRETATIONS

Pintner advanced two possible causes to account for his conclusion that the intelligence of the deaf was, on the average, lower than that of the hearing.[62] He outlined the possibility of a linkage of physical cause for deafness and retardation. The invasion of disease organisms can attack the central nervous system as well as the hearing mechanism. This would account for the distributions of intelligence which are skewed toward the lower levels of functioning. The data bearing directly on this possible cause are limited. Hood cited a higher quotient for meningitic deaf children than those deafened from other causes,[63] and Burchard cited no differences in intelligence between congenital and acquired cases.[64] A definite study based on modern methods of diagnosis would be helpful at this point.

Pintner also suggested that congenitally deaf children may come from families of inferior intelligence. The steps leading to this relationship are the following: The incidence of deafness among the lower income brackets is greater than among the higher. On the one hand, lower income families are less able to afford medical care, and on the other, average deaf families may not be able to secure as high an income as hearing families. There is a link between lower income groups and lower intelligence, but the evidence of this last link is not clearcut except in extreme differences between income levels, since for hearing children, "more than three-fourths of the children who are above the average in intelligence come from the less favored occupational groups".[65] An investigation equating on socio-economic factors as well as those in the pathology of deafness would throw light on the two theories accounting for the lower than average intelligence of the deaf.

The problem also appears to be in part a need to resolve the difference between performances and 'drawing-on-paper' tests. While the former involves overt manipulation and some symbolization, the latter is covert and involves symbolization more definitely. Visual perceptions of differences, similarities, sequences, imagery, etc., in the latter take the place of manual placement of objects. Deaf children's visual perceptions may not be identical with those of hearing children. They may be less able to establish and distinguish among their visual perceptions and to advance from these into abstractions and conceptualizations.[66]

As a step in the advance from the perceptual to the abstract and conceptual, the ability to use symbolization is significant. Word and number symbols, so much a part of our environment, enable us to carry on a host of auxiliary functions that aid our mental functioning. Our perceptions can be analyzed by symbols; discrimination is heightened; symbols aid in classifying and discovering relationships; extensions beyond the immediate environment can be made by symbols. There are some data in the literature that hint of the possibilities of a profitable exploration of the thought that growth in capacity for symbolization in an ordinary language may raise intelligence quotients in 'drawing-on-paper' tests. The thought that the deaf are limited in abstract thinking because of limited symbolization has been put forward by Drever and, more recently, reiterated by others.[67–71]

One view of the effect of a lack of an opportunity to develop and practice the discriminations and combinations of an ordinary language would be that the growth of intelligence is retarded and does not reach the maximum possible. Another view would be that, while growth is at a slower rate, it may accelerate as facility with an ordinary language is mastered and eventually reach the maximum possible. Some of the data summarized under Clinical Interpretations apply at this point. It was shown that upon re-testing with the same test and second quotient tended to be higher than the first, reliably so in one study with a three-year interval. There are three explanations for this: The test is too simple for an older child and does not discriminate well among such children. The schooling of a deaf child stresses visual perceptions of similarities and differences and deaf children profit from this emphasis (just as hearing children do from their verbal schooling). A third possibility, related to the second but including greater possibilities for abstracting, is that not only are discriminative abilities sharpened but symbolization for more exacting perceptions and interpretations developed in schooling. Such a development in facility with symbolization may lead to an increase in quotient by increased ability to handle economically the tasks of the test.

There are some data which have a relation to the two latter explanations, a somewhat tenuous relation, it is true. Oleron[72] found himself unable to fix a precise limit to mental development among the deaf as measured by Raven's matrices although he cited 18 years of age as the age at which maximum development was obtained in contrast with 14 years for hearing children which Raven found with the same test. The mental development of the deaf is not retarded in the sense of not reaching a limit, but is retarded in its rate of growth to that limit. Data on this aspect can be more adequately obtained with a discriminative test for upper levels of non-language abstract intelligence.

As a deduction from this view, it would follow that children who lost their hearing after language was established would tend to have higher quotients than those deafened before this crucial period. The evidence on this point is not conclusive: Pintner cited the data to 1940 concluding that age of onset had no effect on the quotient.[73–74] Temple found that same trend.[75] In two studies, both of unitary capacities, one abstract and one concrete, a slight tendency toward an association of higher quotients and later age of onset was apparent,[76–77] but the tendency is not of predictive value or statistically reliable.

In Hood's study it was found that children born with a severe loss in hearing tended to increase in intelligence quotient with age,[78] but again without statistical reliability.

In a carefully compiled study on reasoning, which may be considered a specific aspect of intelligence, the effect of a hearing loss was clearly delineated. The more pervasive the hearing loss, the greater the decrement in reasoning was the general finding. As the degree of acuity diminished, as the onset occurred earlier, as the duration lengthened reasoning ability diminished especially in the non-language abstract areas, and those dependent on training. In one respect, however, the severely deaf children were the equal of hearing children. When matched on residence in school, intelligence level (not quotient), and educational achievement, although five years older and in school three years longer, deaf children were the equal of hearing in verbal reasoning dependent on training, in the more abstract aspects of verbal reasoning independent of training, and in classifying in abstract non-language reasoning. In connection with the evaluation in abstract non-language reasoning, the deaf were significantly inferior to the matched hearing in analogies. Temple suggested, in her discussion of this finding, that although the deaf received considerable practice in classifying as part of their visual perception education, they had none in analogous reasoning. Her findings have significance at this point in that, when deaf had the same mental and achievement (symbolization) level as the hearing, they were the equal of hearing except in an area in which they had scant practice. While it took five years of their life and three years of their schooling, they were able to 'catch'.[79] A developmental study is needed now to trace whether they maintain their status, as well as further substantiation of the present data, since only 28 subjects were involved in the comparative analysis.

Contrasting the intelligence of deaf and hard-of-hearing children may throw some light on the thought that facility with symbolism in an ordinary language may aid in 'drawing-on-paper' tests. The two groups are, in general terms, equated with regard to the two theories advanced by Pintner. In a study by Lev and Pintner of hard-of-hearing children in public schools,[80] while such children were inferior to hearing children on a verbal test, the difference being reliable, they were not on a 'drawing-on-paper' test. Since these hard-of-hearing children were more similar to hearing children in language (for they were in regular classes) than to deaf children, the difference between the effectiveness of deaf and hard of hearing on 'drawing-on-paper' tests may be due to the language difference between the two.

Research with adequate instruments that function reliably over a wide range would clarify the situation. Each of the three explanations has face value, and they are not mutually exclusive in explaining the intelligence level of the deaf.

In moving into more definite testing of the intelligence of the deaf in order to resolve the conflicting trends in the data to date, attention must be given first to the establishment of instruments to measure intelligence capacities in the deaf. In this venture the following criteria are offered in addition to those which hold true for the testing of hearing children.

The criteria for validity of the test must be clearly stated. The use to which such scales are put, chiefly in school and vocational planning, strongly hint that the scale must differentiate in that cluster of capacities that permit one child to learn more than another when all circumstances except those dealing with the capacities in question are equated. A scholastic aptitude test for the deaf might be the answer. After allowances are made for the usual factors that hinder learning, the test should differentiate between those who do and do not make school progress by evaluating pertinent intelligence traits and excluding school-learned facts. A utilitarian validity criterion rather than correlation with a test taken as authoritative or an analysis ex cathedra should be the guide. If the deaf child does not learn language and its resultants in educational, social, moral, and vocational outcome, he is not adapted to our modern world. Even if the deaf child has capacities which have a concrete, practical application, such as in shop courses, these capacities remain potentialities until he has learned enough language to understand how to secure employment, understand instructions, and so forth. The same thinking can be applied to the moral and religious sphere, the social, and so forth.[81] Since some deaf children do learn language and others do not, a scale differentiating the mental abilities associated with this difference would be of direct school value, especially among younger children.[82] The test should be uniformly standardized on deaf and hearing children for, while the deaf child competes only with other deaf in school, he will face hearing youth in trade schools and on the job. Both norms are useful, but the relative positions of deaf children are still ascertainable with the latter alone.

The fact that in maturation different capacities emerge or submerge in the cluster of intelligence capacities must be recognized in tests for different age levels. Thus the contents may shift from sensory discriminations, the perception of similiarities and differences, and associational thinking to relational thinking and limited verbalization for older children. The test content should be multiple in approach, not unitary, until theoretical considerations on this matter have been resolved. Uniform standardization should not only be made horizontally but extended vertically so that a wide range of ages is uniformly related by standardization. Representative standardization groups of deaf and hearing children should be used throughout.

In making use of pantomime and natural gestures in giving the subjects the instructions, both the gestures and the instructions should be simple, direct, and without special qualifying conditions. A visual-motor presentation may be more easily comprehended than keeping all instructions on a gesture level. Sufficient practice opportunities, to be used at the discretion of the examiner, should insure understanding of the directions. The practice material should be distinctively separated from the test material by placement, size of material, or some other means.

The test, especially on younger and intermediate levels, should be a measure of power, not speed. Time as a criterion should be eliminated except possibly among older children who will soon compete in a speed environment.

The drawings, tasks, etc., should be attractive and yet not contain such detail that would be confusing to deaf children, especially on younger levels. Extraneous stimuli, even for the sake of making the drawings attractive, should be reduced.

FOOTNOTES

1. That some form of inward symbolization may be a crucial assumption, see below.
2. Du Toit, J.M., "Measuring the Intelligence of Deaf Children", *American Annals of the Deaf*. 99:1954:237-51.
3. Freeman, F.S., *Theory and Practice of Psychological Testing* (H. Holt: 1950), pp. 185-6, 208-10.

4. Kronbeck, L.J., *Essentials of Psychological Testing* (Harper Brothers: 1949), pp. 165.
5. Levine, E., "The Deaf", in *Psychological Aspects of Physical Disability,* edited by James F. Garrett, #210 (U.S. Office of Vocational Rehabilitation, Department of Health, Education, and Welfare: Washington, D.C.).
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A MODERN DAY SCHOOL PROGRAM FOR EACHERS OF THE DEAF

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To most people a deaf person is an oddity. His is a handicap that carries no outward crippling mark. Indeed, it is not until the deaf person has failed to respond quickly and perfectly to a sound, that the average individual gives him a second look. That second look invariably includes an emotional reaction which unfortunately is not one of sympathy and understanding but rather of intolerance and frustration for lack of knowing how to communicate with those who for so many years were also considered to be 'dumb'.

Instead of repeating what was said in a normal voice and in a natural unexaggerated manner, the speaker is tempted to shout, or to exaggerate greatly with gestures, or to look pitiably upon the deaf one and give up.

It perhaps never occurs to the lay person that cotton in his own ears during infancy and childhood would have shut off his power of understanding language, and of imitating speech as he heard it. For this is exactly the problem of the deaf. Lack of hearing produces lack of language and also speech. These lacks vary directly with the amount of hearing loss and the age of onset of deafness.

A good program of education in which the eyes are substituted for the ears, and other compensations are made, does much to help the deaf person utilize his potential mental, social, and vocational capacities. He then need not be approached fearfully as an odd one, but naturally as a normal person with the handicap of deafness. The hearing person is asked to see this handicap as one of communication and is advised only to so direct his speech that the deaf child or adult can 'hear with his eyes'.

It is difficult to be definitive when setting forth the best educational program for the acoustically handicapped. The degree of deafness as measured on the audiometer tells only a small part of the story. Varying combinations of physical, psychological and mental powers make pre-packaged solutions impossible. The child with a loss of hearing may be dull or bright, spoiled or well adjusted, rich or poor, an only child or one of many, of English speaking parents or not, of parents interested or uninterested, born deaf or adventitiously deaf, making progress in school or failing miserably, and on and on. Hearing may be his primary difficulty, or it may be but one of many. He may have unique complications of hearing, as the child is thought to 'hear' the speech of others while actually, because his hearing is adequate in the low ranges but not in the upper ranges, he misses all the niceties of language on which discrimination in thought and sharpening of understanding depend. It is evident that proper placement can be made only after considering the entire physical and psychical syndrome.

Deafness isolates as no other handicap does. For this reason it is important to rear the deaf child in as normal an environment as possible. He should live at home as an active member of the family and the community. In order to do this and to have his educational needs properly taken care of, the day school program is the ideal.

New York City Day School for the Deaf

Jr. H.S. 47 Manhattan, the New York City day school for deaf and hard of hearing pupils, was established at the request of parents who desired that their children be educated while living at home instead of being sent to an institution. The school is the largest school in the United States devoted entirely to acoustically handicapped pupils. The rooms are well lighted so that the lips of teachers and pupils can be 'read' easily, and classes are small, — about ten, — so that a maximum of individual attention may be given.

Obviously, what children with hearing losses need most is some hearing. Training whatever hearing remains, by some means of amplification from the earliest age possible, conserves and makes usable a faculty that would otherwise deteriorate. For this reason all children from the babies in Pre-School on up are provided with individual hearing aids; these are loaned to children of the Pre-School through the generosity of the hearing aid companies. Classrooms are equipped with the latest type of electrical group hearing aids. These have been perfected as a result of recent post-war research and provide each child's desk with earphones and individual controls for augmenting or decreasing the volume of sound.

There is a large auditorium, a nature room, science rooms, an open yard for play space, as well as two gymnasiums. In the after-school recreation center, open daily, two teachers are present to assist the children in their self-planned and self-directed activities. There is a large cheerful cafeteria where hot lunches are served at nominal cost under the direction of the school dietician and her staff. A specially prepared hot midday meal is served by the teachers to the babies of the school. Free lunch is provided where necessary.

In September 1940, a ninth year was added to the elementary program and Public School 47 became Junior High School 47. A thorough study of our program was made by the New York State Board of Regents. The academic and pre-vocational program was reviewed by a group of experts to ensure that the curriculum covered the standard first year high school course.

The Charter, issued by the Board of Regents, dated November 1945, holds a place of honor in the school, and states that "official inspection shows that the required provision has been made for building, furniture, library, apparatus, and other equipment for proper maintenance, and that curriculum offerings, teaching standards, and all other requirements have been met." Junior High School 47 is the only school for the deaf in the metropolitan area to which a junior high school charter has been granted.

TRANSPORTATION

The buses have been called the life-line of the school. The boroughs of New York City encompass a wide area, and since Junior High School 47, Manhattan, is the only day school for the deaf in the entire city, the children who attend must be transported to and from school. This transportation is provided free of charge by the Board of Education. In addition to the driver, whose undivided attention must be given to handling of the bus so as to ensure the safety and comfort of his young charges, there is a matron on each bus, whose duty it is to see the personal needs of the children.

The school has, in all, fourteen buses bringing its children to and from school. As the once remote expanse of our city becomes populated and begins to house our ever-increasing population, so the bus routes are changed to accommodate the needs of our children. The children are encouraged to start using the subways when they reach the junior high school grades, but most of them have become so attached to the comfortable atmosphere of the bus, that they are loath to change. Roughly, 20% of our entire registration uses the subways.

THE PRE-SCHOOL PROGRAM

Junior High School 47 is probably the only school in New York City which contains such a wide range of age groups, the youngest being the two-year olds of the Pre-School. These babies begin their school careers with mothers close beside them until they lose their sense of strangeness. In a short time they are ready to travel to and fro on the school bus with remarkable independence. School becomes a second home, where each child has his own towel, bib, cot and blanket for afternoon naps, and accustomed place at the lunch table.

It is between the ages of two and five years that the hearing child acquires his all-important ability to understand spoken language and to speak. It is during these most impressionable years, therefore, that we want to reach the deaf child in establishing the beginnings of communication for him. For this reason we admit the deaf child to school at the earliest age possible, — at present, two years and eight months.

To the great majority of entering two-year olds, the Pre-School offers their first important experiences in group play with others who, similarly handicapped, must communicate their thoughts and feelings, their friendliness or aggression, in terms which are common to all deaf children. Here there is no need to feel 'special', and even to a two-year old the feeling of belonging is deeply satisfying. Such successful social living is the basis for establishing that emotional security on which further learning thrives.

The Pre-School program for the twos, three, and fours, is similar to that of any nursery school, except for the conscious effort on the part of the teachers to meet the additional needs of the deaf child. Emphasis is placed upon situations in which lip reading can play a natural and functional role. For this reason, the daily schedule, once established, is followed faithfully. When a young deaf child is thoroughly familiar with the sequence of activities, it becomes a simple thing for him to understand that those movements of teacher's lips must mean, "Take off your coat," or "We're going out to play" because those are things that have always happened at that time of the day. There lie the beginnings of lip reading, to be followed, as the child's capacity for attentive watching grows, by lip reading opportunities timed to meet his chosen activities of the moment — "Throw the ball to me," "You're pushing the wagon," "Let's put the train on the tracks."

It is in these same natural situations that another important step in his education, — the use of the individual hearing aid, — is introduced. Worn at first only a few seconds each day, — enough to pick up, perhaps, the sound of his own mallet hammering away at the bang-board, — the aid becomes almost as much a part of him as his clothing. By the time the twos have become threes and fours, the aids are worn even in the rough and tumble of outdoor play. Occasionally, of course, even the most experienced teacher of the deaf encounters an unexpected obstacle, as in the case of Kenneth, who after wearing his aid for a year with great pride and gratifying results in improved speech and hearing, suddenly and completely rejected it, to the dismay of family and teacher. He'd reached the cowboy stage, complete with boots, shirt, gun, and ten-gallon hat, but nowhere in his gallery of pictures was there a single cowboy using a hearing aid!

Natural daily nursery experiences provide the stimulus for the beginning of speech. There is no pressure exerted at any time for perfection of speech nor is there a tutorial type of program set up for this area of learning. Constant use of the individual hearing aid together with a good nursery program in which the teacher purposefully meets the needs of the handicap of deafness brings about, quite naturally, the beginnings of spontaneous speech in the deaf child. The quantity and quality of this natural expression vary with the degree of residual hearing and to the extent that the child makes use of this hearing. Motive for learning to hear or, shall we say, for learning to interpret whatever little gets through, has recently shown surprising results in some children thought of as severely deaf.

A good teacher, using methods in vogue some years ago, could get most deaf children to repeat a list of words such as ball, arm, and fish. He gave a drilled response when shown an object or picture. He rarely used the words spontaneously. This technically is not speech but rather a repetition of words.

Real speech is motivated by a desire for expression. The program producing functional speech is much more difficult for the teacher and calls for one who is highly skilled in the work for the deaf and has a well-rounded background in child development.

Another vital aid to hearing and speech growth is the acoustic training program, which is begun very early in the child's school career with exposure to the gross sounds of musical instruments and noisemakers. By the time the five-year olds are ready to leave the Pre-School, many can distinguish among various rhythms played on the piano. One group of hard-of-hearing five-year olds became such proficient listeners to records played over the group hearing aids that they anticipated the characters and events of the story with their own enthusiastic sound effects, and the air was filled with amateur bow-wows, fire-engine sirens, hoof-beats, etc. Children who seem profoundly deaf when they enter school frequently show response to sound after daily systematic training with hearing aids. No claim is made for improvement in hearing, since the audiometer readings remain fairly uniform. Ability to use the remnant of hearing one has from the age of two necessarily makes the child more at one with the world in which he lives.

By the time the young deaf child in Junior High School 47 has reached the age when normal children first enter school, he has shared in rich and pleasurable experiences, and he can turn confidently to his first year in primary school.

The Grade School Curriculum

The major aim of the New York City day school is to educate children with hearing impairments so that they may attend a regular school. For most deaf children this goal is realized at the senior high school level. For some, the transfer can be made earlier.

In order to have the deaf child fit into the program of the normal school, he must be educated along the same lines as his hearing brothers and sisters. In addition to the special work in speech, language, lip reading, and acoustic training, the curriculum areas coincide with those in schools for hearing children, with the exception of music. In this area, we have substituted work in rhythm and acoustic training.

The areas listed in the Board of Education Bulletin, *Curriculum Development in the Elementary Schools,* are:

Pupil Participation: routines and housekeeping responsibilities, planning, personal management, social behavior and responsibility, exploring school and community, practices of democracy, school and community activities and services.

Health: health instruction, guidance, and services; safety education, emotional adjustment within self and within group; physical activities, rest, recreation, and play; nutrition.

Arts: manipulation, experimentation, use of materials and tools, construction; expression through painting, modeling, textile work, sewing, and other processes; practical applications.

Language Arts: reading, literature, use of library, composition, spelling, penmanship; correct usage; speech, listening, dramatization.

Social Studies: history, geography, civics, character, family relationships, consumer problems, intercultural education, citizenship, concepts and attitudes of democracy.

Science: nature study (weather, plants and soils, animals, earth and sky), food and water, instruments, simple machines and electrical devices, flightcraft.

Arithmetic: size, shape, space, distance, time, weight, position; concepts, meanings, relationships, computation, problem-solving.

The junior high school department follows the directives for secondary schools in each curriculum area.

The curriculum is under constant study, and a standing committee of teachers yearly makes recommendations and effects changes when necessary. The curriculum is a vital living program that changes with the needs of the pupils and the community.

In addition there is a course of study in the special work needed to teach the language arts to the deaf.

Visual Aid Program. A well-rounded visual aid program is of great value in a school for the deaf. These children must use their eyes for hearing as well as for seeing. Through the use of sound and silent motion pictures, and slides and stripfilms, instruction of the deaf is made concrete. Many types of visual aid machines are available, and teachers have become familiar with their use. In addition to projectors for sound and silent film, slide and strip film, there is special equipment for making and projecting slides and postcards. The school has a film and slide library and in addition, borrows materials from the Board of Education libraries, or elementary and junior high schools film libraries. Many private companies are the source of additional material.

Industrial Arts. The Industrial Arts program in JHS 47 challenges the instructor as well as the child with problems not generally encountered in hearing school. The Industrial Arts program differs from that of other schools as it includes the elementary department. This enables the pupils to become more familiar with shop terms and vocabulary at a time when their speech patterns are being formed. It also gives pupils more opportunities for experiences with tools and processes.

Each shop is available to every boy and girl in the school in a co-educational program. The Industrial Arts Department consists of six shops: Industrial Design, Foods and Household Care, Clothing and Household Fabrics, Art Metal and Jewelry, Graphic Arts, and Wood Working. Each child has the opportunity to explore the possibilities of each field and, during the ninth year, to major in the shop of his choice. Because of the training in the lower grades, a great deal of originality in the planning and selection of projects is encouraged in the junior high department. This permits the pupil to plan projects correlating his learnings in different shops. Many group projects are carried on in which the children give evidence of their knowledge and ability to do the job at hand. The following are a few: the mimeographing of the school newspaper, the printing of graduation programs, repairing and maintaining playground equipment, making stage settings, making decorations and costumes, doing Red Cross work, making aprons for the shops, and preparing refreshments for various school activities.

Health Education. Deaf boys and girls find no difficulty in competing in physical activities, for this is an area in which a hearing loss is less of a handicap than it would appear. Interest runs high at 47 in all things athletic. The school teams play in a regular schedule of games with other junior high schools.

The dance program, beginning almost from the start of pre-school, develops grace, coordination and body control. Gradually the fundamentals of tap, square, folk and other social dances are acquired and are later put to use in social life in the home, at alumni meetings and at gatherings of young people anywhere.

GUIDANCE

Guidance for the deaf child in 47 begins the day he enters the school. We must provide service to the child and his parent from the time he enters the Pre-School at two years of age until there is no further need for our help. This may take place anywhere from fifteen years of age to sixty. This is no exaggeration. The adult deaf call on us for:

1. Letters of recommendation in gaining employment
2. Affidavits to draft boards for Selective Service
3. Letters to the Housing Authority to get living accommodations
4. Assistance in certifying records of birth, baptism, etc.
5. Job placement and introductions to N.Y. State Department of Rehabilitation.
6. Help in personal problems such as divorce cases, death in the families
7. Assistance in setting up electric equipment in homes of the newly-married

   (We get requests such as, "My son is getting married next week. He is marrying a girl with a hearing loss. Now that he will be living with me no longer, how can we arrange to have him called in the morning? He can't hear an alarm clock. What can be done so that the young people will know the door bell is ringing?" Then when the babies come along we get another series of questions.)

The school guidance counselor works with pupils, teachers, and parents of children in the elementary grades in 47 and continues the service with childen who are sent back to their neighborhood schools. Psychological and psychiatric help is provided by the Bureau of Child Guidance.

In the junior high school department, many individual conferences are held, as well as teacher-pupil and teacher-teacher conferences to discuss and appraise the aptitudes and talents of the pupils. The proper selection of a high school for graduates can only be made after several conferences with both parents and pupils. The guidance counselor visits every high school annually where any of the students are enrolled, and oftener if necessary. This continued interest is helpful in preventing drop-outs from high school. The visit is planned for the seventh through the tenth week of the term. During this visit the handicap is discussed and often, as a result of the visit, a conference is planned for parent, pupil, high school teacher and counselor. Many pupils receive additional help from the senior high school staff when the problem of deafness is fully explained. Special arrangements are suggested, such as:

1. Assignment of a favorable seat in all class and auditorium situations.
2. The 'Buddy' system.
3. Pupils assigned to sympathetic teachers.
4. Elimination of music as a required subject.
5. Acquainting all class teachers with the nature of the handicap and the limitations it imposes.
6. Notifying the foreign language department that acoustically handicapped pupils are excused from dictation in the classroom as well as in the Regents examination.
7. Assignment to teachers whose lips are not obscured by mustaches.

OTHER HIGH LIGHTS

Children with Multiple Handicaps. Many deaf children have additional handicaps. Special programs are provided for such children who have cerebral palsy, or are mentally retarded. There are classes for aphasic children.

Trips. The classroom is wherever learning takes place. Almost any day, you can see groups of children leaving Junior High School 47 to go on trips. These excursions offer such a vital, vivid, and concrete way of learning that they are used in every field of the curriculum and on all grade levels. A trip may be a visit to the shops, offices, library, or cellar of the school, or it may merely consist of a ride on the elevator to the top floor, where many of New York's skyscrapers can be seen. There may be trips around the block to the park, playground, East River, stores or fire station. Then, farther afield, the children may go to museums and to points of interest in the city. That these trips are broadening to any child is well known. How much more so is this true for the deaf child.

Through careful preparation for the trip by means of movies, slides, pictures, and discussion, the child's interest is aroused and his powers of observation stimulated. He knows the route to be taken; the type of transportation, direction of travel, and what he is likely to see. If it's a train or boat trip, he brings his map and follows the route, noting each station as he goes along.

Scouting. Participation in the Boy or Girl Scout Troops of "47" makes it possible for some of our children to participate later in a neighborhood trip. The children find deep satisfaction in all the troop activities and attest to this by a very fine attendance record at the weekly meetings.

Religious Education. Instruction in the three major faiths is given once a week after school in places of worship near the school by volunteer teachers of the deaf.

The School Newspaper. Labor and management never have any trouble in the publication of the newspaper, 47 *Speaks,* staffed, written, published, and distributed six times a year by the pupils. Although the ninth year editor-in-chief has the final decision on questions of policy, the news itself is what the children send to its columns. The paper motivates the written language work of the pupils and is read with interest by both parents and pupils. The name of the newspaper has special significance in an oral school.

Parent Education. Education for the deaf child class for special techniques and approaches. Naturally, the parent of the deaf child needs help in understanding ways of reaching and helping his youngster.

Many means are employed by the school to acquaint the parent with the needs of the deaf youngster. Parents of newly admitted children are asked to be active members in the nursery for as long a period of time as is deemed necessary. This really serves a double purpose, that of weaning the child away from the parent and that of giving the parent a live demonstration of how to reach a deaf baby. This is also an excellent time for the parent to exchange ideas with the teachers of the nursery group, and here is an opportunity for suggesting helpful readings to the parent.

As the child progresses, parent discussion groups are held by the teachers and supervisors concerned, for those with children of nearly alike chronological age. One of the most beneficial results of these meetings is that of parent friendships. It is comforting and helpful for any parent to meet with other parents with like problems.

Panel discussions, forums, guest speakers, demonstration lessons, as well as intimate talks with the teachers, make this program of parent education a very vital one in J.H.S. 47. The groups meet during the school year, as the need is indicated, and numerous individual conferences are held.

Teacher Training. A teacher training course of one year is given in connection with Hunter College. Students with a B.A. degree are eligible and earn their M.S. during the year of training.

The Alumni. The Alumni Association of J.H.S. 47 is an active group which meets three times a year with an average attendance of two hundred. In 1948, when the 40th anniversary of the school was celebrated, the special meeting for graduates numbered over six hundred. They came from all along the eastern seaboard to help honor their school, and to meet the many retired teachers who returned for this meeting.

The Alumni meetings provide opportunities for making new friends and renewing old acquaintances as well as for getting advice on problems. Marriage counseling services have been given for the Alumni. These young people have few opportunities to get information on the problems of marriage and they often turn to the school for this. The Alumni Association proves to be a source of constant inspiration to present pupils, parents, and to teachers.

Itinerant Teacher Programs. There are trained teachers who visit twice weekly pupils sent back to neighborhood schools. These are pupils who have developed a fairly intelligible speech pattern, skill in lip reading, and can use a hearing aid after spending some time at J.H.S. 47. They give the child speech work, lip reading, check on his hearing aid and assist in any need that his regular teacher indicates. This help continues as long as such assistance is needed.

Lip Reading Program. There are nine teachers who carry on a lip reading program for children in all five boroughs of New York City whose hearing losses are not severe enough to require special education.

CONCLUSION

It is understood that only in the largest cities are there sufficient children for the elaborate program outlined above. It must be realized that the large amount of money necessary for personnel, materials and equipment can be justified only when there are numbers of pupils to use the services. A large number of pupils provides two advantages of inestimable benefit to the deaf child.

1. A well-graded program (The deaf child loses much teaching time when it is necessary for him to be in a multi-graded class).
2. An opportunity for social development, which is so important to normal growth (It is a pretty lonesome life when you are the only eight-year old or five-year old or the lone person of any age).

In J.H.S. 47, there are between 40 and 50 children of each age group to work and play with, and with whom to form lasting friendships. Many parents move to cities where there are day schools for the deaf and hard of hearing because they realize the advantages offered.

COUNSELING THE DEAFENED

IRVING S. FUSFELD

Counseling techniques ordinarily employed in guidance procedure apply equally well in dealing with adolescents and young adults in whom impaired hearing is the background handicap, at least in the general approach. But over and above this general approach, certain specifics of action are additionally indicated as arising only because of the presence of acoustic impairment. It is within this framework that the subject of counseling the deafened will be considered.

It should be noted at the outset that although the acoustic disability may be the basic causation, it is here not regarded the fundamental handicap for the simple reason that, as every psychologist knows, accompanying or 'built-in' difficulties may be much more the real handicap to adequate adjustment.

Obviously the first step is for the counselor to acquire as thorough an informational briefing concerning the individual as is possible, on standard case history lines. But is is necessary to caution that deafness is no stereotype. There is no such entity as *the* deaf child or *the* deaf person. In the first place, deafness is a latitudinal experience up and down a very wide range of decibel loss as well as a longitudinal experience over the frequency range, with all of the complicated combinations possible by the crossing of these two sets of axes. And even if the counselor has in his files an accurately plotted audiogram, his judgments must be conditioned further by such facts or as the time of onset of the deafness, the particular cause, the physical sequalia if any, and the mental and emotional accompaniments. From this it will be seen that the counselor must be prepared to deal with indeterminate varieties in refinement of the handicap, and these superimposed upon the matrix of individual differences ordinarily encountered in people in general. If ordinary counseling is a puzzling undertaking, then the conditions involved in counseling the deafened individual are far more so.

It is necessary at this point to call attention to an important consideration regarding psychological acceptance of one's handicap. Indeed, it is important that this concept be clearly grasped by the counselor It is not satisfactory acceptance if the individual simply acknowledges he is struck by the disability, in this case deafness, and because of it is conditioned into a state of inaction. That would be only passive acceptance, or resignation, and so far as his own efforts toward adjustment go means surrender. This type of acceptance is characterized by a crippling timidity and perhaps a morbid apathy, forebodings of failure so far as adjustment to life is concerned. One of the consequences of this type of surrender is the suffocation of the latent abilities that may lie within the individual, and since it is the concern of the counselor to restore these abilities as near to their maximum levels as is possible, his initial problem is to convert this passive acceptance into a more productive positive form. On the other hand, non-psychological or negative acceptance may be manifested by a refusal to recognize that a handicap exists, which when checked by the hard facts of life may erupt into a rampant, defiant truculence that also has debilitating effects upon the individual's adjustments. In short, the counselor may consider psychological acceptance to mean an ordered arrangement of one's life that recognizes the presence of deafness, but nonetheless will not permit the handicap to throttle one's efforts in those directions where it ordinarily can have no thwarting effect. It should mean, further, an arousal of energies that could otherwise have lain dormant. The objective is acceptance seeking sound adjustment to the individual's living needs in their total sense.

What then are the ingredients of sound adjustment when deafness is the handicap in adolescents and young adults? What program of approach to that objective may we advise? The cue will be found in what we know to be the type of behavior component with unsatisfactory adjustment when loss of hearing is the original disability. A report by Solomon outlines the psychological pattern which may be established in such an individual.[1] Young deaf children are prone, according to this writer, to either withdrawal or aggressive tendencies, the former marked by anxieties and shyness, and perhaps other manifestations of emotional disturbance, while the latter displaying symptoms like temper outbursts, stubbornness and other signs of recalcitrance. With added years the deaf child, as the realization of the permanence of his handicap comes upon him, reaches the conclusion that he is different and that therefore he cannot enjoy all the fruits of life open to others. This reflection finds some confirmation in observations referred to later on in this discussion when the 'balance sheet' of the handicap of deafness is considered. This awareness that he is different brings on feelings of depression which tend to magnify the consequences of his deafness, hence stamping in him a deep sense of inferiority and inducing withdrawal from social contacts, especially those with hearing persons. With the individual in this frame of mind, suspiciousness becomes a chronic trait, with the typical accompanying personality complications.

This delineation of the characteristics of the person deprived of auditory power is substantiated by the observations of workers with the deaf, as seen in numerous studies reported. In a paper by Crammatte and Friedman the conclusions of outstanding deaf persons whose experience brought them into close contact with other deaf persons were analyzed to determine the weaknesses to which deaf adolescents and young deaf adults are liable.[2] The traits most commonly observed were these negative characteristics: (1) Unwilling to cooperate with others; (2) overdependence upon others; (3) extremely circumscribed viewpoint; (4) narrow scope of interests; (5) expectation that aid is due them. The same report revealed other traits, even if not so prominently present as the five already listed, namely, an ingrained suspicion they are not treated fairly, very little feeling of social responsibility and hence a high degree of self-centeredness, a lack of the ordinary social amenities, and emotional instability.

On the whole, psychological studies have produced a picture of the deaf as described above, deafness being accompanied by traits such as those here mentioned. However, it would be only correct to add that certain attributes of a positive nature are also found in deaf persons, attributes often overlooked by the psychologist. From their study, Crammatte and Friedman stress also certain assets in the deaf: On the average, the latter are lawabiding, good citizens; they are group conscious and energetically seek means in defense of their rights as a class; they are prompt and conscientious about work obligations; they are remarkably free of traces of intolerance as to race and creed. Howard, writing of the experience of deaf workers in war industries, reveals that such persons, given the opportunity, made an exceptional record for efficiency, this being evidence that they possessed sufficient asset-traits for adjustment.[3] The publications of organizations of the deaf refer frequently to successful orientation of young deaf persons to the exacting demands of employment conditions, attesting to the fact that they have adjusted satisfactorily.[4]

Levine, in a study of adolescent deaf girls, found them retarded in development of the conceptual forms of mental activity, lagging in effecting meaningful insight into the dynamics of the world about them, given to a tendency to evaluate environmental events in terms of ego-satisfactions, with indications of egocentricity, easy irritability, impulsiveness, and suggestibility, and finally subject to a withdrawal of affective responsiveness to a narrow, but more secure, area.[5] Levine holds that to designate the above tendencies as a constellation of maladjustment, as is commonly done, is not quite warranted; on the contrary such behavior structure could be considered a perfectly 'normal' method of reacting, *i.e.*, adjusting, to the peculiar situation of these children. Are the deaf emotionally unstable? They are, rather, subject to emotional and conceptual immaturity, and it would be an error to construe this as pathological. Instead, it should be regarded as the normally accepted outcome of the special environmental limitations imposed by the handicap, namely, it is just what would be expected under the circumstances.

Wile, a psychiatrist of considerable experience with the deaf, observes that the latter cannot evade a recognition of their limitations and that they seem to attain "a high degree of personal adaptation with excellent evaluation of the realities of life."[6] He states further that he has found comparatively little neurosis among deaf children, and similarly few psychoses among adolescents, indicating "the excellent mental equilibrium they achieve and maintain. The inner needs of acceptance and the demand for adjustment to reality appear to result in a type of stabilization of personality of distinct social value."

With the pattern clearly outlined of what the product may be, we can proceed to consideration of the steps in psychological acceptance of the handicap of deafness which will establish the positively adjusted individual.

McKinney holds that the well-adjusted individual is one who can meet his needs "with the resources available" within his environment.[7] The fact that a person has suffered either impairment, or even total loss, of hearing is no sign that other satisfactory resources are not available, and it is in this thought the counselor may have a most telling point.

The first and foremost principle in setting up acceptance of the positive kind is adoption of an attitude that the handicap is there to stay, that it is irreversible. Assuming all legitimate possibilities of remedial effort have otherwise been explored, the counselor can help make this a positive factor of belief by persuading the deafened person that his handicap can no more be brushed away than the color of his eyes, and that brooding over it is a fruitless waste, with blunting effect on talents that otherwise could get him righted in life.

Recently the writer had more than a hundred young deaf persons of both sexes write out their views of the relative advantages and disadvantages of deafness, one of the purposes of the project being to discover if there was among them any pronounced feeling of resentment or non-acceptance over their handicap. It was possible that the young person who was deafened might, because of that fact, be assailed by disturbing and dispiriting doubts and so continue hampered in efforts to attain stability. Perhaps if the individual could come face to face with the question, if he had it out in the open so to speak, he would have taken an important step toward acceptance. By weighing both sides of the case, he might come to see that there are two sides even to a handicap, that after all it is not an insufferably total loss. The act of thinking the matter through, and the knowledge gained from such an experience, could be a restorative of therapeutic value.

Ramsdell refers to the intense depression in adults who have suddenly experienced loss of hearing, a feeling of insecurity due to loss of contact with the world of sound on the primitive level, that is, the broad mass of sound present in the background of our daily activity.[8] The lively play of the world of sound with its countless variations of high and low, from rhythmic beat on the one hand to gnashing on the other, is absent. With this background cut away the individual is overwhelmed by a sense of isolation in a 'dead' world, an insecurity compounded principally of fear, apprehension and anxiety. Nor is he intellectually aware of the reason for the state of depression. It is stated that recognition and conscious understanding of his dilemma are essential if the debilitating influence is to be allayed. If there is warrant for this surmise, then an opportunity to see the pros and cons of the handicap of deafness might serve to ready the individual for its psychological acceptance. It is the view of Plant, himself a psychiatrist, that "The modern psychiatrist would recommend to those of you with the lightest touch and the keenest vision that some time each day be dedicated to finding out what some child thinks about his deafness".[9] McGrath, describing problems of the hard of hearing, suggests that one of the primary steps to adjustment is for the person openly and objectively to analyze the difficulties that bar the way, the analysis at the same time bringing into focus the positive as well as the negative possibilities.[10] The mere knowing of the two sides will ordinarily lead to choice of a likely solution. This is the familiar mental trial-and-error procedure in psychology.

In the great majority of instances, the deaf adolescents and young adults who responded to the question as to what they thought about deafness were quite candid in admitting the preponderance of disadvantage. In none of the replies was there evidence of self pity; if difficulties in adjusting were noted, it was with a frank and objective tone. Summed up, their reaction to being deaf assumed in composite a balance sheet quite free of the tint of discouragement.

Among the disadvantages noted were some restrictions of a physical nature; that is, certain signals in life are not readily available to deaf people because such cues come via hearing, *i.e.*, emergency sounds like fire alarms, the warning of the automobile horn, the clang of the street car, etc. There were also limitations of a social nature that in large measure shut off the deaf from the ordinary minglings of other people. This last limitation was the one most emphasized by the group of deaf persons supplying information. The disadvantages extended also along educational lines, since it was felt that the loss of hearing imposed limitations on the speed of learning as well as on the degree of educational opportunity in life outside of school. The handicap set up disadvantages in the matter of vocational opportunities, particularly in employer reluctance to accept those with a handicap. In personality growth, the young deaf persons who answered admitted to feelings of inadequacy and to a sense of frustration, two attitudes which quite logically would generate a high degree of sensitivity in their relations with people. The aesthetic values ordinarily obtained through the experiences of music in the world of sound are denied them, as is also the enjoyment of certain of the recreations dependent upon hearing. Such is the broad picture of the debit side of deafness.

There are, however, certain compensations in loss of hearing which should properly be credited as assets. On the physical side, the handicap shields the individual from the great number of discordant experiences that are part of the world of sound, thus establishing a quiet which provides opportunity for mental rest and repose. There is also the likelihood that out of necessity the remaining sensory powers are sharpened to greater utility, an advantage lost to others. On the broadly human side, the deaf find numerous social and recreational activities open to them, particularly so among themselves where the friendships made have an especially enduring quality. An enroused consciousness on the part of society over the need of rehabilitation effort for persons physically handicapped has made possible advantages of education that might not be available for the same persons were they not deaf, at least so reasoned many of the deaf persons who responded to the question of advantages versus disadvantages. In occupations the found deafness induces a keener dexterity and power to concentration, both serving for greater efficiency. Inner poise and contentment are potent advantages obtained in a non-hearing life. As for aesthetic values there are those accruing from a special sensitivity to vibration and the harmony of rhythm in the phenomena of action in the life around them. Above all, the handicap of deafness itself can have the effect, — and a most satisfying one it can be, — of stirring in the individual the competitive will to achieve, affording an energy release that arouses special talents which otherwise might lie dormant.[11]

Such is the pattern of life the deaf person is asked to accept. It involves much more than deprivation of the sense of hearing. On the face of it, the testimony of these deaf persons themselves bears somewhat on the minus side; the disadvantages in the listing appear to outnumber and perhaps outweigh the advantages. But a realistic appraisal must also take account of the fact that despite their handicap and the effects that go with it, the deaf on the whole offer a satisfactory social picture. They attain to wholesome, adequate maturity; they establish homes of satisfying standards; they hold a successful place in the occupational world given the opportunity and often in the face of prejudice and blocking; they have a strong group consciousness; they manifest a zest for life in recreation and in travel, they maintain religious affiliation and even have their own religious organizations; they record well in intellectual and scientific accomplishments; they achieve highly in the realm of the aesthetic, as in art. In short, they make good citizens. All of this, it must be remembered, is attained while bearing their handicap. As one of them put it, "Deafness is not a handicap; inconvenience is a better word for it."

If acceptance of the handicap and the way of life that goes with it are to be a working practice, the counseling program will necessarily begin soon after appearance of the handicap, extend over a continuing span of time, and engross the efforts of many collaborators. First and foremost in the case of deaf children, it will be the school where the solid foundation will have to set, with effective training in language, numbers, speech lip-reading, acoustic training where it is warranted, the content subjects, character and personality development, and vocational preparation. Close integration of the work of rehabilitation should be established with the school long before the individual leaves its halls. All too often the product, enveloped in the 'sickly hue' of maladjustment, is thrust upon the rehabilitation agent, when the corrective work should have been completed long before in the school years where the vital foundations can be laid. This is a problem where the roots lie deep.

Particularly discouraging in the rehabilitation effort is the fact that so large a number of the pupils in schools for the deaf drop out before completing the prescribed courses of study. In a nation-wide study of schools for the deaf, Day, Fusfeld and Pintner determined that in 18 residential schools which had such information available, more than 60 per cent of the pupils left before graduation, and that in 11 of the same institutions the proportion was 80 per cent or higher, a really discouraging toll.[12] The general contour of this tendency is confirmed by Best.[13] There is further testimony that adjustment correlates highly with education. Luther reports from extensive rehabilitation experiences that the deaf and the hard of hearing fall into these classifications:

> 1. Those who surmount their handicap, refuse to admit defeat, and become respectable, useful, self-supporting members of society. Their number is legion. This class is of the better-educated group.
>
> 2. Those who use their handicap as a smoke screen and assume a braggart manner. These impress the general public as being self-sufficient; however, their very attitude prevents their being such. Many times their weakness is caused by their families coddling them too much and too long.
>
> 3. The introverts, who are firmly convinced nothing can be done for them and that the world is against them. Their disability has become an *infliction* rather than merely a *handicap*.

The same writer adds that generally speaking those in the second and third of the above categories left school before completing the course.[14] If the school program is geared to the concept that its pupil personnel must be afforded an education that has wholesome adjustment as an aim, then the large number who do not remain to obtain the full benefits of that program are at best only partly prepared to take up a way of life in which acceptance of their special position is the sustaining force. This situation can only compound the problems of rehabilitation.

The home, of course, must be enlisted as an ally in the effort to establish acceptance. School and rehabilitation workers know well how important that influence can be. It is a commonplace in psychology that the personality gestalt of a deaf person is early fixed in him by the parents. They can 'spoil' him by an overweening indulgence out of a mistaken sense of love, or they can affect his growth adversely by deliberate neglect out of an unprincipled sense of rejection. Many agencies and workers in behalf of the deaf, as well as the schools, are vigorously active in correcting these ills by a barrage of informational literature, by preschool activity, and by parent clinics and institutes. This type of effort is at the base of effective rehabilitation, and points the way to making acceptance real and early in life.

The parents are involved in another aspect of the problem of instilling acceptance. "Hope springs eternal" is the way we may put it; that is, even after competent medical advice has settled the question of permanence of the condition of deafness, the folks in the home at times find it difficult to resist the importunities pressed upon them and they try one device or another; many of them bordering on the 'crackpot' in nature, namely, faith healing, airplane spinning, spurious medication, herb concoctions, and similar *abracadabra*. Aside from the waste and even menace hidden in such fruitless effort, there is a very real psychological loss in that it weakens that much more the attempt to set up wholesome acceptance in the person most concerned, the deaf child.

There is still another fallacy too often born in the home. Swayed by overoptimistic narratives of the marvels accomplished in the school, accomplishments blown up as 'miracles' by feature writers seeking the dramatic human touch in everything, the parents are too frequently misled into feeling that a completely 'normal' system of education is the only thing; that is, their deaf child, they feel, should be educated only in the regular public schools alongside his hearing comrades. Little do they realize that they are so often doomed to disappointment in the outcome. Little do they realize that they are thereby psychologically stamping in the very thing they are trying to avoid, namely, that their child *is* different. Here again is a factor that does not aid him in the process of wholesomely accepting his deafness.

Handicap acceptance in the case of the deaf person appears to be a correlative of age at time of onset of the disability. Thus, those in whom it is congenital or who acquired it very early in life usually adopt an attitude of acceptance, and as Nash puts it, "It is not normal for them to reject this reality persistently."[15] Obviously also, it would be expected that a young person who has had the use of hearing well into the teenage years woud react more or less violently psychologically if that sense were abruptly terminated. Consider the case of a youth in the senior high school, his heart set on becoming a physician or a lawyer, suddenly left totally deaf after an attack of spinal meningitis. He might have been a member of the school orchestra, with all the joy a young person finds in the usual bustle and hurrah of high school activity. Now he finds himself enveloped in a vast stillness which he does not understand. He sees his mother's lips move, but where is the soothing charm of her voice? It will be a real task for the counselor to lead this boy back to a philosophic acceptance of the altered order of life he must now adopt. But it can be done.

As has already been here suggested, insight into the problem should aid the individual in attaining acceptance of the situation. Reflectively discussing the pros and cons will highlight the possibilities for adequate adjustment. One young deaf person, writing out his opinion when confronted with the question, summarized it in this manner: "In spite of many disadvantages we have, let us face it and make the best of it." Another expressed it in these words: "Every deaf person will always consider himself handicapped but mostly without much bitterness. One can make a habit of almost everything, and that is what makes it possible for the deaf to accept their handicap and make the best of the situation in spite of this handicap." Still another summed it up with this observation: "I wish I would hear, but I'm not in dying need of hearing, as far as I know." Where the quandary has taken deep root, psychotherapy may be indicated, but in the case of deafness, particularly when the subject has not acquired skill in lip-reading or if the counselor is not acquainted with manual means of communication, treatment offers scant promise of success.

Workers with years of experience among the deaf who have pondered the matter feel that for a deaf person psychological acceptance of the handicap is somewhat of an intangible, yet nonetheless can be made a forceful instrument of adjustment. This has been impressively described by Schowe, himself a deaf man and an expert in industrial psychology, as the Art of Being Deaf.[16] This, in addition to the ordinary attributes of acceptable personality, namely, good appearance, promptness, energy, enthusiasm, willingness to cooperate, etc., assumes the following pattern of behavior:

> One who consciously practises this art knows all the advantages and disadvantages of being deaf and he knows how to keep the disadvantages at a minimum. Learning this, he has learned also how to associate with hearing fellow workers on the most favorable terms possible, thus assuring harmony instead of friction.
>
> Many practise the art unconsciously. They have soaked it up through their skins, as it were. Nevertheless, there are basic principles which can be taught.

According to the same observer, the essential component of this art of being deaf is "the ability to establish mutually satisfactory relations between the deaf and their hearing fellow workers," a skill more important even than trades proficiency. This ability, like the ability to operate a motor vehicle or to bake a cake, can be cultivated. It can be developed by an assessment of the individual's total trait assets and debits. With the steadying knowledge that he is neither all asset nor all debit, he can be taught to see each of the items in the balance sheet in its true proportions with respect to its effect upon his settling down to living a four-square pattern of life with his fellow men. He can be taught to so manage his energies as to reduce the admitted disadvantages to the least influence in his career, and conversely to extract all the dividend he can out of the advantages in his situation. Deafness is a handicap, but handicap is after all a relative experience. The diabetic with the urge to live must forego certain experiences that he sees others enjoy; the person with hypertension must restrict himself to a limited scope of activity. These are all forms of accepting a handicap and living accordingly.

The deafened person can be taught that despite those items admittedly of a negative nature, he can tap resources within himself of which he may not even be aware and which can serve him well. In every person linger some memories of having accomplished at one time or another in the past one or more feats over and above the ordinary level of his daily life, occasions when he was more or less the "hero." Systematically reliving such experiences, at the prompting of the counselor if need be, can result in fortifying the confidence of the individual who, for instance, is downcast by the fact of severely impaired hearing. Overholser, superintendent of St. Elizabeth's Hospital, is quoted to that effect in an article by Keyhoe.[17]

It will be instructive to consider here the story of a deaf young man now enrolled in college. At the age of six he suffered loss of hearing from spinal meningitis, his medical report lists him as having "a crooked foot which causes him to be lame," and he has been subject to attacks of epilepsy. Not very promising equipment to start with, to be sure! But he had the stir in him that would not permit dominance by even a multiplicity of handicaps. He felt he had resources available that could enable him to rise above the handicaps. He would try out for the wrestling team. The coach, himself a master of the physical art, was better still a man of fine human discernment. Under his tutelage the recruit developed into one of the stalwarts of the squad. But it is not the succession of medals he has won, nor the fact he helped substantially in bring the team to championship standing that is of importance here. It is rather the fact that in some way handicap stimulated an energy release of hidden resources that lifted the individual *above* the average level. The convincing fact is that in the overall picture the handicap may be converted from a debit to a credit value by furnishing the incentive to surpass. This may be called compensation, but in fact it is more than that, for it establishes the *habit* of drive, the urge not merely to succeed, but actually to excel.

Earlier in this discussion a balance sheet of advantages and disadvantages which accompany deafness, based upon the written opinions of young deaf persons themselves, was considered. This provides a rational blueprint for acceptance. It assures the individual concerned of what lies ahead of him. If, for instance, from this guide sheet he realizes that ordinarily social activity among the hearing is limited for the deaf, or that a deaf person in a hearing group will miss the customary small talk in the way of banter, he can find a satisfying comfort in the knowledge that these experiences and many others like them are after all not vitally essential to life, and that moreover he can discover wholesome, worthwhile compensations in other channels. The numerous instances on record of successful careers of deaf persons, both men and women, attest to the value of such an outlook on life. Knowing this he can gird up his loins, better prepared. Whether it is called rationalization or not, it at least is a rational, conscious approach, and as such points the way. He has thus gained a working philosophy of life.

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BASIC PREPARATION FOR TEACHERS OF THE DEAF

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FUNDAMENTAL PRINCIPLES

Educators of the deaf are fairly well agreed on at least two fundamental principles governing teacher preparation for education of the deaf. One of these principles argues that inasmuch as deaf children are first and foremost children, the same broad tenets of pedagogy that have proved wholesome and adequate in teaching ordinary children apply also in the case of deaf children. This means the teacher must be well versed in the theory and philosophy of education in general. Her own education and preparation must include the study, observation and practice that normally form the core of preparation for service in the regular school.[1]

But another principle applies with equal importance in dealing with children whose sense of hearing is non-functional for the ordinary purposes of life. Here the special handicap sets the need for specialized approaches over and above those called for in general education[2] The special condition here involved thus makes it necessary for the prospective teacher to be equipped with specialized knowledge and skills. Such information and such skills are not lightly or hurriedly acquired. Educators of the deaf, therefore, have gone to great pains to fashion carefully organized curricula of preparation.[3]

Even a brief survey of the conditions that emanate from the fact that a child cannot hear will indicate the types of needs in teacher preparation. It is reasonable to suppose that a fairly comprehensive knowledge is necessary of what deafness itself is, how it originates, the variant forms in which it may appear, and the limitations it imposes. The teacher must also be aware of the accompanying effects as the child grows physically and emotionally under the handicap. Important questions intrude in this connection: How are the remaining sensory powers affected; that is, how much and what kind of sensory training will be necessary to get him to a state of readiness for the ordinary school disciplines? What does loss of hearing do to his capacity to learn? What impress does it leave on his nature as a prospective social being? In short, it is essential for the would-be teacher to delve into the psychology of deafness, including, of course, testing of abilities and the measurement of progress.[4]

Since the child does not hear, he has not had the opportunity to garner any of the speech experiences that the ordinary child automatically falls heir to and that speed the latter in acquiring power to communciate quickly and easily with others about him in his own home circle and outside. The teacher, then, must learn how to teach deaf children to acquire speech, a painstaking, halting, step-by-step, often mechanical process, a task of stupendous proportion in sharp contrast with the simple, effortless manner in which ordinary children obtain it. This means the teacher must become virtually an expert in this domain of speech from the bottom up.

An allied skill which the teacher must help the deaf child gain is that of speech reading, or as it is more commonly known, lip-reading. This in itself has become something of a science. Experts and schools of thought in this field have devised various methods, each with its own merits. It is thus incumbent upon the teacher-to-be in the ordinary school for the deaf to become conversant with practically the whole range of lip-reading methods developed by teachers in that field.

The extent of a deaf child's handicap is particularly marked in the realm of language. By the time his hearing brother or sister attains the threshold of school life, there has already been built up, via the ear, a huge store of word and sentence understanding. Simply by the intuitive process of absorbing what he hears going about him the live-long day, the ordinary child has learned the names that things and actions go by, he has learned the basic grammatical constructions, and he has made working contact with idiomatic expression as well as with the colloquial, merely out of simple and continued auditory repetition. He has even, ordinarily, marked into his consciousness the nature of expressions that clothe abstract ideas. In short, he has constructed a workable fabric of language usage which in turn will aid him as he reaches out in the school experience to acquire his education on normal lines.

All of this ease of communication, of language usage and of language understanding, has been denied the deaf child. For him it is a blank page when he enters school.[5] It becomes the function of the teacher, in her preparation, to learn how to bridge this void. For the teacher this is a skill not easily acquired. The problem of imparting language skills to deaf children is certainly one of the most baffling as well as most urgent in education of the deaf.[6] When the school years for such children have come to a close, the result even after arduous attention and effort by the teacher is all too often discouraging and disappointing.[7] Many hold this problem to be the most perplexing of all, the one yielding fruit only very grudgingly. As it involves semantic aspects with innumerable abstract overtones, it becomes more than a mechanical process, as, for instance, acquiring speech may be. The best minds in education of the deaf have long been devoted to this need, with the result that a series of excellent language-teaching methods has been evolved down through the years, each with its own ardent advocates. It falls to the lot of the prospective teacher to be well prepared in at least one of them and to gain some knowledge of all of them; in truth, it is vitally essential that the preparation in this respect be basic and well grounded. Ordinarily she has given little heed to the process by which we acquire language, and it surely must be a novel, a captivating experience for the new teacher to learn that here she has children who start school life with *no* language knowledge, who are unaware they or others have names, that the objects and actions they observe about them go by names and words, and that these words can be pieced together to produce the important results that make up the process of living.

Similarly, the past decade and more have seen striking advances in the sciences related to acoustic experience. Audiometric instruments and particularly mechanical devices for amplification of sound have opened entirely new and intriguing possibilities for application in education of deaf children. Full realization has come upon us that residual hearing, minor as it may be in extent, can be made an important ally in the educative process for deaf children. Especially is this true in teaching speech, where command of pitch, tone, volume, accent and syllabification is necessary in teaching lip-reading and in imparting language understanding. As part of the preparation for her work, therefore, the teacher of the deaf must acquire an understanding certainly of the fundamental principles of audiology, she must acquaint herself with the use, if not the care, of the apparatus that now goes with this activity, and she must even become acquainted with the graded curriculum in acoustic training that seeks to bring to school use whatever hearing her pupils may possess.

If the problems of teaching children to read effectively is a sore one in the ordinary public schools, for the teacher in a school for the deaf it becomes compounded by reason of the fact of deafness and the effects which that condition entails. Here involved in readiness for the reading experience complicated because the child does not hear, because he suffers from a prior barren association with language, and because his unsteady acquirement of language imposes a chronological deficit in a graded approach to reading skill. Worse still, these difficulties have a way of interacting one upon another, which will help illustrate the task before the teacher. Accordingly, in teacher preparation it becomes necessary to probe into special methods in the field of reading that seek to surmount these obstacles.[8]

The customary subject matter in the school course of study likewise presents a special problem. Number and time relationships are concepts that for deaf children call for prime beginnings, and how to master this approach becomes one of the special needs in the teacher-preparation program. To a similar degree special attention must be given to making effective the other school subjects, and particularly so because the use of the ordinary public school textbooks and related materials is an added difficulty for deaf children. This, then, is one more facet, and by no means an insignificant one, in teacher-preparation needs.[9]

The subject matter in the basic curriculum of teacher preparation in education of the deaf would end short if it were concerned only with the fields of interest outlined to this point, important as they nonetheless are. There are other essential lines of study, all revolving about the fact that the children in the school do not hear at a functional level. Teacher preparation, to be effective and to meet expanding school needs, can no longer be confined to the limited zone of classroom techniques only. An organized guidance program, for example, has become one of the mainstays in the ordinary school, and if the special work of the school for the deaf in particular is to enjoy even a fair degree of effectiveness, it must similarly make use of those principles and procedures which will lead its pupils to a wholesome outcome, that is, planned guidance. The period of teacher preparation must of necessity devote some share of attention to this need on an organized basis.[10] Within this province must also be included a knowledge of the vocational possibilities of the deaf, the development of which has, by common consent, become a responsibility of the school for the deaf. A knowledge of the life of the adult deaf, of the economic and social problems that are their lot, should enter into the experience of teacher preparation, for from it will come important insight into what is being attempted in the school.[11] And just as parent-teacher cooperation has become a cardinal interest in the public schools of the nation, this is all the more necessary with schools for the deaf. In fact, many of the progressive centers among the latter are taking the initiative of bringing into the school orbit the parents of deaf children even *before* the latter have reached school age, a more complete readiness for the work of the school being the objective. This means that preschool training for deaf children in which the home can be listed as an ally becomes part of the interest of the teacher-preparation curriculum. The school is further concerned with the fact that deafness in children may set up home conditions that can prove a retarding influence all through school life, the relationships that go with overprotection on the one hand or with rejection on the other. Thus, for effective consummation of its program the school is necessarily committed in some degree to the problem of parent education. Teacher preparation, therefore, must provide for treatment of this field.[12] It should be noted, in addition, that since deafness in children is at times accompanied by one or more other disabilities, inborn or acquired, it is necessary for teacher preparation to include a knowledge of the problems of other handicap areas, including instances where multiple handicapping conditions exist at one and the same time.

Just as the study of the history and philosophy of education is considered a necessary phase of teacher preparation generally, it would seem equally necessary that for the teacher of deaf children a portion of the course of preparation be devoted to a review of the history of this special field. This will provide opportunity for the new teacher to become acquainted with changing philosophy within the area and to furnish her with a realization that it has been a movement of growth. But above all it should enable her to gain a perspective, one of the most useful of all skills for the teacher, a power to stand off and see the problems before her against the backdrop of what others have attempted. In this respect her study of the past can be productive in a positive manner, to delineate the difference between one who automatically repeats a dull routine and one who reasons through to the meaning of what her work as a teacher is to be.[13]

Needless to say, the record of the past as well as a charting of the present has been spread out more and more over a commanding literature. Fortunately professional reference material in work with the deaf has been expanding at an increasing ratio, as has also been the case in allied fields. It will, therefore, become an essential activity, in her preparation, for the teacher candidate to become closely acquainted with this literature, for much of her guidance then and later will have to come from these sources. From this it argues logically that no teacher-preparing center can function efficiently if it is laggard in its reference-material resources.[14]

There remains now two considerations of vital importance, namely opportunity for observation of classroom and school procedures under adequate school conditions, and then a carefully planned and carefully supervised program of practice teaching. The first of these needs in teacher training should be met with the thought that the candidate is entitled to every favorable regard. She should be afforded opportunity to see the school as it operates in purposeful and orderly progression; her program should be laid out with the intent of establishing in her a desire to become part of it. It goes without saying she should for this purpose have the good will of every officer in the school set-up.

After a preliminary and satisfactory period of observation and study has been provided, and only then, the teacher-preparation program should with the same care set up a schedule of practice-teaching experience. This again should introduce the candidate to a substantial first-hand contact with the work of the school in practically all of its phases. This activity should, of course, be directed by expert supervision, first on the part of experienced classroom teachers and secondly by the supervising teachers and principals. This should involve the preparation, in accord with approved standards, of lesson plans and the most appropriate classroom materials. Both the observation and the practice-teaching experience should be considered the 'clinical' counterpart of the teacher-preparation curriculum, and accordingly should be given commensurate care in its management. The latter should include studied reports prepared by the candidate on the substance and progress of her work, and in turn these reports should furnish opportunity for consultation and discussion with experienced members of the school staff.

A final point is to be noted. Ordinarily teaching, if school work is to achieve the promise of which it is capable, is an enterprise in which human values are at stake. This is all the more so in the case of children who start life with a handicap, in this instance deafness. No mere mechanical proficiency will suffice for the teacher; she will require more than that in her arsenal of teacher equipment to tide her over. It will not be enough to know how the vocal apparatus functions in fashioning the diphthongs, or the proper moment when to introduce the present progressive as a language principle. She must, rather, be inspired by a teaching heart. This above all, intangible as it is, must still be the fundamental in the teacher-preparation program.

An excellent summary of the principles basic to teacher preparation, determined by study of past and recent practice and of the views of administrators and qualified teachers in schools for the deaf, was made by Brill in his investigation of the training of hearing academic teachers of the deaf.[15] These sum up in this wise:

1. Careful selection of candidates with due consideration given to the person's personality, love of children, and interest in the field.
2. Broad basic preparation in the field of education that will enable the candidate to be certified as a public school teacher of normal children.
3. At least a full year of specialized training that will lead to a degree.
4. Opportunities for observation and practice teaching in a school that has well-graded classes of deaf children.

5. Attainment of knowledge, competencies, or skills in each of the following areas:

(a) methods of teaching speech to the deaf
(b) methods of teaching language to the deaf
(c) methods of teaching speechreading to the deaf
(d) methods of teaching elementary school subjects to the deaf
(e) methods of teaching reading to the deaf
(f) supervised classroom observation
(g) practice teaching under supervision
(h) physiology and pathology of organs of speech and hearing
(i) auditory training and techniques in the use of hearing aids
(j) audiometry and the physics of sound
(k) psychology of the deaf and statistical study of the deaf
(l) guidance for the deaf, including a study of tests and measurements, applicable to the deaf
(m) preschool deaf child and parent education, and
(n) history of education of the deaf.

DEVELOPMENT OF A STANDARD CURRICULUM FOR TEACHERS OF THE DEAF

Thomas Hopkins Gallaudet, founder of the first permanent school for deaf children in America, at Hartford, in 1817, was also one of the pioneer advocates of specialized teacher training for instructors in the ordinary schools, publishing a tract on that subject as early as 1825.[16]

The same period witnessed the appearance in rapid succession of a number of schools for the deaf in New York, Pennsylvania, Ohio, Kentucky, Indiana, and other states. These new schools had to be staffed, and it was a frequent practice to reach back for supply to the parent school in Hartford where teachers had at least the virtue of classroom experience and some acquaintance with the sign language. Among the teachers thus recruited were a number who were themselves graduates of the Hartford School and who because they were deaf and had knowledge of signs as a language were felt to be especially qualified, thus introducing the deaf teacher as a factor in education of the deaf. In turn these schools became second-tier centers for the supply of teachers for still other schools set up.[17]

The first center to announce an organized course of training for teachers of the deaf was the School of Vocal Physiology, opened in Boston in 1872 by Dr. Alexander Graham Bell and continuing under his supervision for seven years thereafter.[18] The course was designed to give practical instruction in Visible Speech, aimed particularly to promote the teaching of speech to deaf children, according to a system invented by his father, A. Melville Bell. The subjects studied included acoustic, vocal physiology, the Visible Speech symbols, methods of teaching articulation to the deaf, speech defects, methods of correcting dialectic speech peculiarities, speech culture, lip-reading, methods of teaching the deaf, dactylology, and advice to parents.

In 1881 appeared the first summer school in oral training for teachers of the deaf at Scranton, Pennsylvania, organized by Miss Emma Garrett, herself a graduate of Dr. Bell's School. This center continued its activity for some years as a regular year-round course, offering training in the mechanics of speech, development of speech in the deaf, teaching language to the deaf, the principles of education, methods of teaching lip-reading, and corrective speech.[19] Observation and some practice work were provided for the course at Miss Garrett's School opened in Philadelphia in 1892, the Home for Training in Speech of Deaf Children. A similar enterprise was the school of the Wisconsin Phonological Institute in Milwaukee in 1883, with which the public day-school for deaf children in the same city was affiliated and which provided practice opportunity.[20]

In addition to these formally organized centers, a number of schools for the deaf carried a more or less impromptu, in-service system of training individual teacher candidates. This type of preparation characterized teacher education for work with the deaf in many cases, evidence of the growing need for teachers. It consisted in large part of advisory help from more experienced members of the staff, and notes and outlines provided by the head teachers, supplemented by a schedule of observation, assisting the regular classroom instructors and culminating in taking charge of a class with supervision by the principal. In the main this comprised a makeshift apprentice-like type of training, rather than a systematically laid out curriculum of study and practice.[21]

The era of the formally organized teacher-preparation program offering a systematic and broad curriculum, with the intent of helping to meet the continuing demand for new, qualified instructors, was ushered in with the establishment of the Normal Training Department at the Columbia Institution for the Deaf (i.e., Gallaudet College) in 1891. The course of instruction included concentrated training in oral teaching, Bell's system of Visible Speech, anatomy and physiology of the vocal apparatus, lectures on laryngoscopy, a series of lectures by the college staff, and an extended course of lessons in the sign language. To these subjects were added a schedule of observation in the classrooms of both the Kendall School for the Deaf and the college department, practice in speech and speech reading with deaf students, and a substantial reading program on related reference materials.[22]

At the request of the American Association to Promote the Teaching of Speech to the Deaf (now the Alexander Graham Bell Association for the Deaf), the Clarke School for the Deaf in Northampton, Mass., in 1892 expanded the teacher-education program set up three years earlier for its own teacher-supply needs, to include preparation of teachers for schools for the deaf at large.[23]

The intense need for qualified teachers in schools for the deaf brought on another movement in the past score of years, namely a joint cooperative program between schools for the deaf on the one side and university centers on the other. Notable among these is the program initiated at Central Institute for the Deaf in St. Louis, where the training course covers two years in affiliation with Washington University. By this plan undergraduate students may devote their junior and senior years to the teacher course at the Institute, the work being so arranged as to meet requirements for the Bachelor degree. Similar arrangements permitted students holding the Bachelor's degree who were enrolled in other centers such as the Lexington School course in New York City to earn the Master's degree at Columbia University, at New York University, and at Hunter College for students in training at Public School

47 in New York City, and at Smith College in Northampton for such students in the Clarke School Training Class.

A significant turn in the development of the teacher-education program was initiation of effort to assure satisfactory standards of qualification, a reflection of similar trends for professional certification of teachers for the ordinary public schools. The first definite steps in this direction were taken with adoption of a resolution by the Conference of Superintendents and Principals of American Schools for the Deaf at St. Augustine, Florida, January 1924, to the effect "that the greatest need of our schools is more thoroughly trained teachers, and that a need almost equally great is a standardized course of instruction"[24] At the same time a special committee was chosen to make a searching study of the subject. This Committee on Standardization of Normal Courses for Teachers of the Deaf brought in a report at the next meeting of the Conference held in Frederick, Maryland, in 1926, which, referred to by Superintendent A.C. Manning of the Western Pennsylvania School in moving its acceptance as "The beginning of better days," laid down twenty-two points for an outline of a basic curriculum of teacher education in this special field. These provided for: (1) study of the deaf and semi-deaf child of school age, (2) preparatory sense training, anatomy of the organs of speech and hearing, (3) phonetics, voice development and rhythm work, (4) speech reading, measurement and training of residual hearing, (5) language for the deaf child, including methods of reading, (6) methods in the main school content subjects, (7) the daily program for different grades, (8) outline of the general course of study in a school for the deaf, (9) the habit of reading, (10) educational psychology, (11) history of education of the deaf, (12) religious instruction, (13) the deaf as a class, (14) types of schools, (15) speech reading for adults, (16) daily observation of classroom work, (17) daily class practice work, (18) observation of physical training, (19) and observation of manual training. The manual alphabet and the sign language were to be optional with the training center. The committee also recommended that there be certain qualifications for admission to such training courses, that candidates continue for a minimum of one full school year, and that a title designating satisfactory completion, such as G.T.D. (Graduate Teacher of the Deaf), be granted.[25] The report also included a recommended course of reading for training classes. It thus represents the first organized effort to establish approved standards of qualification for teachers of the deaf. Its significance is heightened by the fact that it was drawn up by the organization of executive heads of schools for the deaf, the professional agency especially concerned with teaching staff appointments.

In turn, this step led logically to the setting up of a plan of certifying teachers of the deaf. The Conference continued active exploration of the problem at successive meetings in 1928, 1929 and 1930, and finally a workable procedure was made effective when in 1931 the same body of heads of schools (now known as the Conference of Executives of American Schools for the Deaf) instituted a plan of certification under direction of a special Committee on Certification. The latter group was charged with a two-fold responsibility:

(1) The setting-up and management of a system of certifying teachers of the deaf according to a Class C, Class B, and Class A arrangement, qualifica-

tions for each of these grades or levels depending upon different degrees of academic attainment, special training, and prior teaching experience, and

(2) Certifying training centers by a process of evaluation after inspection, employing the standards agreed upon at the Frederick Meeting in Maryland in 1926 as background requirements.

By resolution, the Convention of American Instructors of the Deaf urged that the Conference of Executives take such action and thus lent approval to the principle.[26]

In the meantime, steps were taken by the American Association to Promote the Teaching of Speech to the Deaf, after preliminary planning that reached back to its Summer Meeting in Staunton, Va., in 1928, to set up a system of registration according to graded levels of qualification of teachers of the deaf whose concentration of interest lay in oral instruction and who were members of the organization. This system, gotten under way in 1931, was by mutual agreement merged with the Conference Plan of Certification in 1935.[27]

Pursuant to a resolution adopted by special convocation at Gallaudet College of executives of American schools for the deaf in 1947, the major organizations concerned with education of the deaf were urged to establish a joint commission to formulate the specifics for a standardized and basic teacher-preparation course of study, the feeling being that the profession had far outgrown the requirements laid down in Frederick, Md., in 1926.[28] The urgency of this move was pressed by a similar resolution at a special meeting of executives of schools at the time of the meeting of the Convention of American Instructors of the Deaf in St. Augustine, Fla., also in 1947.[29] The desire to agree upon a basic outline of standards that had official professional approval was also motivated by the marked increase during recent years in the number of university centers furthering the clinic movement in which problems of conservation of hearing and of speech pathology rather than the conditions of classroom teaching of deaf children were the main objective. In a number of instances such clinics were associated with schools of medicine. In these centers, audiology and questions dealing with the hard of hearing particularly were also given special emphasis, and student training, when it was offered, bore that bent to a major degree. That is, individuals with this type of preparation were not adequately equipped as teachers of the deaf.

These efforts in due time bore fruit. Independently both the Volta Association for the Deaf, the new name assumed by the American Association to Promote the Teaching of Speech to the Deaf, and the Conference of Executives each adopted a basic curriculum as their respective minimum standards for teacher preparation, the former taking this step in May, 1951 at Philadelphia, and the latter a month later in Fulton, Mo.[30–31]

The similarity of these two plans may be noted when they are placed in juxtaposition. The numerical designation of the course segments represents the order of appearance in the original report but does not necessarily signify order of importance. The titles are almost identical. It will be seen that in a number of instances the corresponding synopses are practically alike; in the others, the difference is not very marked. Item 9 in the Association Plan, that is, Psychology of Exceptional Children, does not appear as such in the Conference outline, but the latter states the teacher candidate should have had some prior study of that field, or take it concurrently with the course in training, including as well a course in Child Growth and Development.

THE ASSOCIATION PLAN	THE CONFERENCE PLAN
1. *The Teaching of Speech to the Deaf* This course should include a section on phonetics (The International Phonetic Alphabet, Bell's Visible Speech, a Diacritical Marking System and/or the Yale Charts). It should also cover methods and devices for developing all the English sounds. It should stress a definite philosophy (the sound, syllable, or whole-word-with-meaning approach) and should include the basic principles to be taught, viz.: (1) good voice placement, (2) enunciation, (3) pronunciation, and (4) phrasing. It is essential that demonstrations and practice with deaf children be an integral part of this course.	1. *The Teaching of Speech to the Deaf* This course should cover the formation and development of English sounds by the analytical method, and should also cover the introduction of speech by the whole-word method. Some time should be devoted to the correction of speech defects in the hard of hearing, but the major portion of the time should be devoted to developing speech in the deaf child. It is essential that demonstrations and practice with deaf children under expert supervision be an integral part of this course.
2. *The Teaching of Language to the Deaf* A study of techniques employed in the development of language with deaf children, with special emphasis on problems and methods. This course should introduce the student to the various systems of teaching language that are in use in the various schools for the deaf in the country. A thorough understanding of the construction of the English sentence and the principles of grammar is essential to the proper use of any of these systems and should be included in this course. The student should be prepared in methods of correcting mistakes in language, common to the deaf child.	2. *The Teaching of Language to the Deaf* This course should introduce the student to the various systems of teaching language that are in use in the various schools for the deaf in the country, and the student should become very familiar with the step-by-step development of at least one language system. The systems which the student should become familiar with are the Barry Five Slate, Wing's Symbols, Fitzgerald Key, Natural Method. The material in *Outline of Language for Deaf Children* by Edith M. Buell should form the basis of such a course.
3. *Methods of Teaching Elementary School Subjects to the Deaf* This course should include methods of teaching reading to deaf children—both the recognition of symbols and the selection and organization of materials to provide, at all levels of achievement, for the improvement of skills contributing to more efficient apprehension of meaning and a higher degree of interpretation and application. Classroom procedure and methods of presentation of the content subjects, such as arithmetic, science, and	3. *Methods of Teaching Elementary School Subjects to the Deaf* This course should include methods of teaching reading to deaf children both in the lower and higher grades. Methods of teaching content subjects such as arithmetic, social studies, and science should be considered in this course. Particular emphasis should be placed on methodology in the intermediate and advanced grades. Some time should be devoted to the use of visual aids in classes for the deaf.

the social studies, should be considered. The sources of procurement and the use of all types of visual material should be discussed. The use of all types of visual material should be discussed. The use of teaching films should be demonstrated—the films to be used as part of regular class work and not as entertainment, to insure an active attitude rather than a passive viewing of such films.

4. *Problems in the Education and Guidance of the Deaf*

This course should cover the history of the education of the deaf. It should review the findings of the various research studies that have bearing on the psychology of the deaf, social adjustment of the deaf, and studies related to the deaf and their learning problems. The student should become familiar with the professional literature in the field in this course, and he should also become familiar with the place of the adult deaf in today's society.

5. *Auditory and Speech Mechanisms*

This course should cover the physiology and pathology of the speech and hearing mechanisms.

6. *Audiometry, Hearing Aids, and Auditory Training*

A survey of the physics of sound with special emphasis upon the acoustics of speech and the function of the ear as a sound receptor. The concept of *threshold* should be introduced, especially the several types of thresholds involved in speech perception and methods for their determination. The testing of hearing and the interpretation of various types of audiograms with stress on their value in the educational program should be included. The problem of the selecting and fitting, the care and benefits of hearing aids should be discussed. Lectures should be given to help the student teachers set up practical classroom programs for children with varying degrees of hearing loss. Such a program should include developmental exercises in *listening* to speech and language (for recognition and interpretation) and the *production* of speech and language.

4. *Education and Guidance of the Deaf*

This course should cover the history of the education of the deaf. It should review the findings of the various research studies that have bearing on the psychology of the deaf, social adjustment of the deaf, and studies related to the deaf and their learning problems. The student should become familiar with the professional literature in the field in this course, and he should also become familiar with the place of the adult deaf in today's society.

5. *Auditory and Speech Mechanisms*

This course should cover the physiology and pathology of the speech and hearing mechanisms.

6. *Audiometry, Hearing Aids, and Auditory Training*

In audiometry this course should cover the theory of hearing testing and familiarize the students with various methods and various types of instruments used in testing hearing. It is recommended that each student test at least ten children of varying ages who are in a school for the deaf. This course should cover the theory and operation of various types of individual aids and group aids. In auditory training the student should learn the theory, possibilities, and limitations of a good auditory training program. Such a course should include lists of materials and a suggested developmental program.

7. *Methods of Teaching Speech Reading to the Deaf and Hard of Hearing* This course should include the principles of teaching speech reading, the limitations and possibilities of lip-reading; preparation of original speech reading material suitable for hard-of-hearing and for deaf children; study of systems of speech reading for adults; Bruhn, Nitchie, Kinzie, etc.	7. *Methods of Teaching Speech Reading to the Deaf and Hard of Hearing* The various methods of teaching speech reading such as the Nitchie, Kinzie, Whilden and others should be covered. The collection of materials for use in teaching speech reading should be a part of this course.
8. *Observation and Student Teaching* This course should include a minimum of 400 clock hours of observation and practice teaching in classes of deaf children in a well organized school for the deaf with an enrollment of not less than 100, varying in age from pre-school through Junior High School (9th grade) and student teaching in classes on at least three levels: pre-primary, primary, elementary, and/or Junior High School.	8. *Observation and Student Teaching* The facilities for class observation and student teaching should be extensive enough so that the deaf children are fairly well graded. This will normally mean that there are at least six classes of differing grade levels. The student should be required to do at least some practice teaching on each grade level so that he will have a better understanding of the whole educational problem of the deaf child.
9. *Psychology of Exceptional Children* The study of children who deviate from normal: mentally retarded, gifted, deaf, hard of hearing, crippled, blind, and partially seeing, speech defective, socially maladjusted, etc.	

Recommended semester hours, minimum and maximum: 1 — 4-6 hrs.; 2 — 4-6 hrs.; 3 — 4-6 hrs.; 4 — 2-3 hrs.; 5 — 2-3 hrs.; 6 — 2-3 hrs.; 7 — 2-3 hrs.; 8 — 6-10 hrs.; 7 — 2-3 hrs.; 8 — 6-10 hrs.; 9 — 2-3 hrs.

The several minimum and maximum limits of college unit credits indicate a way in which the two approved courses of basic preparation may differ sharply when set up in the different centers offering such preparation. Assuming 30 to 32 semester hours cover the normal load in a year at college, each of the respective plans could presumably be completed in that length of time. But the maximum spread would also permit expansion within each of the two programs over a longer period and a more extensive coverage of course work, especially in those centers where the curriculum calls for a two-year span as in cases where it is laid out for the junior and senior college years.

Neither plan suggests a reading list or bibliography of reference material, differing in this respect from the original Conference Plan adopted in 1926. Both plans presuppose that the student teacher "has had work in the field of education, preferably a major in elementary education." The Association Plan requires that the courses should be conducted by experienced instructors and that the practice work should be offered in a well organized program for the deaf with an enrollment of at least 100 pupils.

The agreement between the two proposed programs for teacher preparation in education of the deaf was given added force at a College Symposium on the Education of the Exceptional held under sponsorship of Hunter College in New York City in February 1952. This group dealt particularly with problems of Teachers and Other Professional Personnel, Their Selection and Education, and in this connection a work section on The Deaf concluded that "adequate standards of education and certification for teachers of the deaf are satisfied by the programs of teacher preparation as developed by "both the Conference of Executives and the Volta Association."[32] The Symposium added endorsement of the need of attention to children with multiple handicaps.

SUMMARY

The course of development of teacher preparation in work with the deaf is thus clearly outlined. The crude earliest beginnings rested on a "curriculum" which consisted of a more or less brief residence in a school for the deaf, some observation and largely undirected class practice and, above all, instruction in the use of manual-language. As the need for teachers became more pressing, preparation for the work assumed the character of in-service or "on-the-job" training. The cadet-teachers, as they were sometimes called, would be given charge of practice classes, usually small groups, under guidance of experienced teachers on the staff, and using the latters' notes and lesson plans. These cadet-teachers usually included monitorial duties as part of their course of preparation, the latter being really an apprentice-like type of experience. It was primarily intended to meet local needs, and only secondarily to furnish teachers for other schools. At best it was only a stop-gap method.

The introduction of speech methods and the gradual improvement in classroom procedures, particularly with the advent of systematized language-teaching methods, placed a premium upon specialized knowledge as preparation for teaching deaf children. This led to the establishment of the student-teacher program on a systematically organized basis with proper course-sequence structure, and supposedly reflecting the practices in effect in the better schools for the deaf.

Improvement of teaching techniques in the ordinary public schools, under impulse of the rapid progress made in psychology and education along scientific lines, brought on a demand to set standards of preparation for teachers according to criteria approved by leading organizations in work with the deaf, a movement that paralleled, and in many instances merged with, the certification effort of the state public school systems. This movement to set approved standards for the program of education of teachers of the deaf has been further strengthened by its affiliation with accredited college and university centers, thus imparting to it the level of higher education, with all the benefits accruing from that status.

FOOTNOTES

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3. Fusfeld, Irving S., *A Study of Teacher Certification Requirements Among Public Residential Schools for the Deaf* (Maryland State School for the Deaf: Frederick, 1948), pp. 45-47.
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HEARING AIDS FOR DEAF CHILDREN*

WILLIAM G. HARDY

When a child has so much impairment of vision that he must be trained in a sight-saving class, it is usually taken for granted that he wears glasses. As a matter of fact, he has usually worn glasses for some time, long before he enters school. It is doubtful, indeed, that any teacher or school superintendent would say to this child's parents: "He does not get much help from his glasses, and really does not need them. Suppose we take them off and train him as a totally blind child."

Yet, a situation much like this occurs commonly in the management of the deaf child, and the comment is made daily: "He has so little hearing that it is a waste of time and money to bother with a hearing aid. Suppose we forget about the hearing aid—we don't think it helps him—and concentrate on training him as a totally deaf child." What goes on here?

Powerful New Tools Are Helpful

With the advent of the vacuum-tube amplifier and hearing aid and, more recently, the transistor aid, powerful new tools have been developed that prove to be of great benefit in the training of the deaf child. That these tools are not being used to the fullest extent is a matter for great concern. With the use of modern diagnostic methods and measurements, there need be no mystery about the amount and kind of hearing impairment even in very young children, and a reasonably good prediction can be made about the child's use of his residual hearing. A hearing aid makes sounds louder, and, depending upon the amount of hearing potential a child has, can bring him some—or a great deal—of the world of sound. This is a matter of medical-technologic-behavioral fact, and is not dependent upon any particular educator's allegiance to any particular educational methodology.

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*Reprinted from *The Volta Review*, Oct., 1954. Dr. Hardy is director of the Hearing and Speech Center, The Johns Hopkins Medical Institutions, Baltimore, Md.

The question — hearing aids for children? — is pointed up in a comment made recently on the editorial page of a school publication concerning a meeting of a group of educators of the deaf:

> Much consideration was given to the matter of hearing aids, their use and abuse. Educators of the deaf are glad to welcome improvements that are being made to hearing aid instruments, but deplore the fact that in many instances such aids are sold to individuals, who, because of their degree of hearing loss, cannot benefit by their use. Furthermore, the idea of placing hearing aids on children merely because they can understand the spoken words more readily with the use of such instrument, is not the solution to the educational problem.

If this statement means what it seems to mean, there is ample reason to examine carefully the thinking it seems to reflect.

First, it is difficult to conceive of an abuse of a hearing aid, short of slamming the thing on the floor, tearing the receiver cord in two, puncturing the microphone, or similar acts of vandalism. A hearing aid is an electronic instrument designed to make sounds louder; it can do nothing else. It cannot think; it cannot perceive; it cannot react in any way. It has neither mind nor soul. The only abuse to which it can be subjected is that which human beings inflict upon it. One assumes, of course, that a hearing aid would not be worn during periods of rough play.

Second, in the nature of things there are only a relatively few children with total hearing loss, or with the physiologic potential of hearing so debased that the most powerful hearing aids cannot penetrate. On the other hand, there are many children with serious bilateral hearing impairment who have never been exposed to amplified sound, whose minds have never learned to comprehend sound, and who act as though sound is completely meaningless to them—as, indeed, it may well be. To state that they are totally deaf, however, because they do not act as though they hear, is to argue in a circle. They act totally deaf because they have not had any opportunity to know sound.

With due respect to psychoacoustic fact, it makes little difference whether a child has a 65-decibel hearing impairment or an 85-decibel hearing impairment (the one is ten times greater than the other); either would be deaf, in the sense of the mind's ability to comprehend average conversation, without the use of amplification and special training in language. Yet, the child with the 65-decibel hearing loss can, other things being equal, learn to live and get along within the range of ordinary conversation. The child with the 85-decibel impairment can never clearly perceive ordinary conversation and must depend basically on vision; but even he can gain a greater deal of benefit from the consistent, persistent use of (exposure to) amplified sound.

A Few Cannot Be Helped

Without doubt there are a few children whose hearing potential is so debased that they cannot profitably use amplification. But this is a small group, percentage wise; statistically, their number is insignificant in matters of educational philosophy and policy. That a few families with children in this group are led to buy hearing aids is regrettable. One must assume that the sellers of the aids are proceeding with conviction and the hope that some small stirring of audition will be of help. This is the only assumption that is reasonable, for the total aggregate of hearing aid sales to deaf children of all degrees amounts to only a small proportion of the annual output of hearing aids.

The Object of Hearing Aid Use

Third, "the idea of placing hearing aids on children merely because they can understand the spoken words more readily" is the whole object of the use of hearing aids for deaf children. Were children to understand spoken words readily, they would not be deaf. If, with the use of hearing aids, they can understand spoken words more readily, no further argument need be projected for the use of hearing aids; and the special educator can have no better goal. That this "is not the solution to the educational problem" goes without saying. It would seem that the object of education (of deaf children, and of normally hearing children) is not to teach them to hear, but to help them to learn how to live a productive, satisfying, reasonably independent life in which literacy, ethical values and moral integrity become tools for living. The implication in reference that the "placing of hearing aids on children" is "the solution to the educational problem" is tantamount to suggesting that the child with a severe visual disorder (a level, say, of 20/200) is educated by virtue of the fact that he wears glasses which enable him to distinguish form and some semblance of spatial relations. This is a discursive straw man. Who, in all sincerity, would offer such an argument? And what educator, in all sincerity, would restrict the use of glasses for a child with 20/200 vision, on the ground that they do not enable him to see normally?

More Discussion of the "Educational Problem" Is Needed

There are evidently some serious problems involved in this question: hearing aids for deaf children? There are many emotional overtones; toes that have been stepped on; varied points of view in historical background; an authoritarian confusion between professional experience with hearing and experience with deafness. These negative aspects of human relations are regrettable and all too human; the basic question is much too important to be dependent upon the personal relations of this educator or that audiologist. One must assume that the "educational problem" is open for discussion, for exchange and revision of ideas, for continued experimentation and understanding.

The problems of the training of deaf children are unique in special education, largely in that the tools of the mind—hearing, language and speech—are most seriously affected by the physical handicap. (This is true, as well, in many instances of multiple handicaps, brain-damaged children, dysphasic children, and others.) The mind's normal channel for the development of these tools is basically auditory, with visual, tactile and other sensations serving as adjuncts. For the deaf child, this order of basic perception is changed; he must learn language meanings and expression basically through visual stimulus, with auditory sensations, tactile awareness and so on as adjunctive attributes.

A basic question is this: how little residual hearing can there be still to be useful or serviceable in the deaf child's learning processes? The answer is—

very little, *provided that it is put to use early and consistently, so that the mind's awareness of sound can become an active part of the child's behavior and relationship with his world.* Under ideal circumstances of case-finding and diagnosis, this is not a problem for the educator; most deaf children would simply arrive with hearing aids, having had several years of experience in exposure to sound and in putting it to use in the course of childhood development. Their awareness of sound through amplification would simply be a part of their awareness of their world, just as is residual vision for the child who arrives at the sight-saving class. Under these circumstances, the idea of ignoring the deaf child's residual hearing would simply be unthinkable.

From this perspective, the following facts and ideas are summarized for careful consideration of educators of the deaf, clinical otologists and audiologists, parents and teachers—all those whose knowledge, interests, skills and love are dedicated to the welfare of the deaf child. It is understood that some of the statements are argumentative in the sense that clear evidence is required to support them. Too much space would be required in the present context to adduce all the evidence that is available and pertinent; the critic is referred to the current literature in otology, audiology, psychology and education.

First, in modern physiologic and clinical terms, there are relatively few totally deaf children. With the advances of medical diagnosis and therapy there are only a few things which can cause total deafness. *The fact that a child is so deaf that he does not respond to ordinary sound must not be confused with total deafness.* The reserves of the human hearing mechanism are great, and can usually be reached by adequate stimulus with amplification so that at least some hearing sensation can occur.

Second, of those children with hearing impairment severe enough to interfere seriously with the development of language and speech, perhaps 30 per cent are educatively deaf. The others are potentially hard of hearing.

Third, many more than 30 per cent of the children mentioned above are currently enrolled in various schools for the deaf, and the number is apt to increase as younger and younger children are admitted prior to, or without, an adequate diagnostic work-up.

Fourth, at any given age—say, four years—there is commonly a great difference between a child's hearing potential and his actual functional response to sound. Hearing, as the term is commonly used and understood, is in part a function of the auditory end organ and in part a function of the mind's perceptual activities. The mind's understanding (use of hearing) is a learned activity, and the deaf child needs every opportunity, and every chance for auditory stimulus, to learn to use what residual hearing he has.

Fifth, in modern technologic terms, few deaf children lie beyond the reach of a powerful hearing aid. This follows from point 1, above.

Sixth, educative expectancy in the use of a hearing aid is quite different for the deaf child from what it is for the hard of hearing child. For the child who is educatively deaf, hearing at best can be only an adjunct to vision and the other perceptual modes.

Seventh, current investigations indicate beyond any reasonable doubt that the deaf child trained to see and hear simultaneously communicates better than does the child who learns to depend on either vision or hearing alone.

Eighth, *there is incontrovertible evidence that the child who is introduced early to amplified sound learns to use it and to adapt to it.* The idea that the deaf child must somehow learn what language is before he is permitted to use his residual hearing is consistently reiterated by some educators of the deaf; this idea lacks basis in fact—physiologic, neurologic, pathologic, or psychologic. The deaf child will learn so-called "natural language" best with the earliest possible use of sound, as does every other child.

Ninth, in physiologic and behavioral terms, deafness is not an entity. A group of children who are educatively deaf at any given stage in early development—say at age four—will typically have more different patterns of residual hearing and therefore many different levels of potentials in learning to adapt to the use of sound. Some of those with relatively good potential hearing may be quite deaf functionally; some of those with quite profound hearing impairment may learn to interpret sound quite readily. It is important in the diagnostic process that a careful measurement of each child's residual hearing be made, so that the fullest advantage of his hearing potential can be striven for. The effect of this objective, of course, is to put special emphasis on what hearing remains, rather than on what is lost.

Residual Hearing Must Be Considered In Terms of the Child's Potential

Tenth, hearing is in part a function of the auditory end organ and in part a function of the mind. There is no treatment or improvement known for a severe, bilateral, nerve-type hearing pathology, so far as the function of the end organ is concerned; but the mind can be trained to make profitable use of even minimal amounts of residual hearing, provided that amplification is used to reach the residual level. For this reason, the level of a young deaf child's residual hearing must always be considered in terms of his potential, not his immediate performance. At stake here is the difference between hearing (being aware of auditory sensations) and understanding (learning to give these sensations meaning). Most deaf children can be aware of some auditory sensation; they must learn to give it meaning. In the long run, their functional performance will be a direct product of training, of learning; if this training is geared to the idea of total deafness, and he is not given the opportunity to put what residual hearing he has to use, he will be functionally deaf. Most deaf children have enough residual hearing so that it can become an active part of their perception of and adjustment to the world around them. They need the help of daily, hourly experience with amplification.

There is good reason for society to be concerned about the fact that modern amplification is not being employed to the fullest extent in the training of deaf children. Considerable progress toward this end has been made in recent years. There remains a great deal of antipathy to the idea. It is to be hoped that the facts will consistently be re-examined, and educational philosophy and procedures modified accordingly. Hearing aids for deaf children? By all means, as early as possible.

ORGANIZATIONS FOR THE DEAF *

FOUNDATIONS AND INFORMATION CENTERS

American Annals of the Deaf, Gallaudet College, Washington 2, D.C.

Dept. of Services for the Deaf-Blind, 15 West 16th St., New York 11, N.Y.

Helen Keller Committee for the Deaf-Blind, 15 W. 16th St., New York 11, N.Y.

The Audiology Foundation, 180 Fort Washington Ave., New York, N.Y.

The Foundation for the Deaf, Inc., Gallaudet College, Washington, D.C.

American Federation of the Physically Handicapped, 1370 National Press Building. Washington 4, D.C.

Volta Bureau, 1537-35th St., N.W., Washington 7, D.C.

Child Study Group for Parents of Hearing Impaired Children, 6468 E. Atherton Road, Flint, Mich.

Association of the Junior Leagues of America, Inc., The Waldorf-Astoria, 305 Park Ave., New York 22, N.Y.

Hearing Foundation, 5 E. 47th St., New York, N.Y.

National Auricular Foundation, 612 West Shorb, Albambra, Calif.

The Barbara Brauer Foundation for Deaf Children, 1534 Pitner Ave., Evanston, Ill.

The Children's Research Clinic of The Winthrop Foundation for the Investigation of Deafness, 243 Charles St., Boston 14, Mass.

National Association of the Deaf, 2495 Shattuck Ave., Berkeley 4, Calif.

National Society for Crippled Children & Adults, Inc., 11 S. La Salle St., Chicago, Ill.

Jack Little Foundation, Box 288, Madill, Okla.

The Virginia Hearing Foundation, Inc., 109 Cabell Hall, Univ. of Va., Charlottesville, Va.

HOMES FOR THE AGED

Archibald Memorial Home for the Aged Deaf, Brookston, Indiana

Gallaudet Home for the Aged and Infirm Deaf, 22 Bancroft Road, Poughkeepsie, N.Y.

Gallaudet Home Society, Inc., 183 Pinehurst Ave., New York 23, N.Y.

Home for the Aged, Institution for Deaf Girls, 3725 St. Denis St., Montreal 18, Canada

Illinois Home for the Aged and Infirm Deaf, 920 Elmwood Ave., Evanston, Ill.

Ohio Home for Aged and Infirm Deaf, 6971 Sunbury Rd., Westerville, Ohio

New England Home for Deaf Mutes, 154 Water St., Danvers, Mass.

The Ladies' Auxiliary to The New England Home, 154 Water St., Danvers, Mass.

Pennsylvania Home for Aged and Infirm Deaf, owned by the Pennsylvania Society for the Advancement of the Deaf, 9549 Milnor St., Philadelphia 14, Penna.

Southern Home for the Aged and Blind-Deaf, 1911 Boulevard Drive, S.E. Atlanta, Ga.

Memorial Home for the Deaf (Private), 1015 Grove St., Oakland 7, Calif.

California Home for the Aged Deaf, 953 South Menlo Ave., Los Angeles 6, Calif.

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*Courtesy of *The American Annals of the Deaf,* 1955 *Year Book.* A more complete list for the professional worker will be found in the *Annals.*

INSURANCE

National Fraternal Society of the Deaf, 433 South Oak Park Ave., Oak Park, Ill.

Knights and Ladies of De l'Epee Sickness & Disability Association, 453 Madison Ave., New York 22, N.Y.

Massachusetts Benevolent Association for the Deaf, 15 Stratton St., Dorchester 24, Mass.

VOCATIONAL REHABILITATION

American Vocational Association of the Deaf, Gallaudet College, Washington 2, D.C.

Audiology Clinic, New York Regional Office, Veterans Administration, 252 Seventh Ave., New York, N.Y.

American Rehabilitation Committee, Inc., 28 E. 21st St., New York 10, N.Y.

Handicapped United, Hull House, 800 S. Halsted St., Chicago, Ill.

Audiology & Speech Correction Center, Walter Reed Army Hospital, Washington 12, D.C.; Office of Vocational Rehabilitation, Dept. of Health, Education, Welfare.

Children's Bureau, Dept. of Health, Education, and Welfare, Washington 25, D.C.

Goodwill Industries of America, 1222 New Hampshire Ave., N.W., Washington 6, D.C.

National Rehabilitation Association, 1025 Vermont Ave., Suite 514, Washington 5, D.C.

National Association of Physically Handicapped, Inc., 1801 D St., S.E. & P.O. Box No. 2514, Washington, D.C.

United States Naval Hospital Aural Rehabilitation Unit, Philadelphia 45, Penna.

Institute for Special Workers for the Aural Disabled, Office of Vocational Rehabilitation, Dept. of Health, Education, Welfare, Washington 25, D.C.

MEDICAL

The American Laryngological Rhinological and Otological Society, Inc., Medical Arts Bldg., Rochester 77, N.Y.

Institute of Physical Medicine and Rehabilitation, 400 E. 34th St., New York 16, N.Y.

International Audiology Conference, 149 Harley St., London W. 1, England

American Academy of Ophthalmology and Otolaryngology, Committee on the Conservation of Hearing, University of Iowa, Iowa City, Iowa

American Otological Society, 950 E. 59th St., Chicago 37, Ill.

American Medical Association Council on Physical Medicine and Rehabilitation, 535 N. Dearborn St., Chicago 10, Ill.

Advisory Committee on Audiometers and Hearing Aids

American Medical Association Section on Laryngology, Otology & Rhinology, 535 N. Dearborn St., Chicago, Ill.

The Colleguim Oto-Rhino-Laryngologicum Amicitiae Sacrum, Noorerhaven 7, Groningen, Holland

The New York Academy of Medicine Section on Otolaryngology, 2 East 103th St., New York 22, N.Y.

British Association of Otolaryngologists, 45 Lincoln's Inn Fields, London, W.C. 2

Hearing Conservation Committee, Maricopa County Medical Society, Phoenix, Ariz.

Lempert Institute of Otology and Lempert Research Foundation, Inc., 74th St., New York, N.Y.

Committee on Hearing Defects, State Medical Society, 704 East Gorham St., Madison 3, Wis.

N.Y. Eye and Ear Infirmary, 218 Second Ave., New York 3, N.Y.

Otosclerosis Study Group, Division of Committee on Conservation of Hearing, 640 S. Kingshighway Blvd., St. Louis 10, Mo.

EDUCATIONAL

Association of Public School Teachers of the Deaf, 225 E. 23rd St., New York, N.Y.

Council of Administrators, Supervisors, and Coordinators of Special Education Programs of Local School Districts, 1323 Hinman Ave., Evanston, Illinois

Conference of Executives of American Schools for the Deaf, Tennessee School for the Deaf, Knoxville, Tenn.

Convention of American Instructors of the Deaf, Kansas School for the Deaf, Olathe, Kan.

International Council for Exceptional Children, 1201 16th St., N.W., Washington 6, D.C.

Sigma Alpha Eta (National Speech and Hearing Society), Speech and Hearing Clinic, Louisiana State University, Baton Rouge, La.

Illinois Council of Teachers of the Deaf, 7006 S. Loomis Blvd., Chicago 36, Ill.

Friends of Hearing Handicapped Children, 1156 Van Buren Ave., St. Paul, Minn.

Council of Day School Teachers of the Deaf and Hard of Hearing, Dept. of Special Education, Board of Education, Rochester, N.Y.

Mu Iota Sigma (A fraternity for teachers of the deaf), Col. Wolfe School, Champaign, Ill.

California Association for Aural Education, College of the Pacific, Stockton, Calif.

National Association of State Directors of Special Educators, State Dept. of Education, Oklahoma City, Okla.

Ohio Association for Supervisors and Teachers of Deaf and Hard of Hearing, Kennedy School for the Deaf, 245 Salem Ave., Dayton, Ohio

Parents and Teachers of Deaf Children Assoc., 725 Vine St., Erie, Pa.

National Catholic Educational Association (Deaf Educational Section), 1785 Massachusetts Ave., N.W., Washington 6, D.C.

The Hearing Problems Study Group, Norwalk, Calif.

Study Group Classes of Parents of Deaf Children, Calif. Guild for Deaf & Hard of Hearing Children, 166 So. Burlington Ave., Los Angeles, Calif.

RECREATIONAL AND ATHLETIC

American Athletic Association of the Deaf, Silver Spring, Md.

American Deaf Railfans Association, 5953 S. Wilton Pl., Los Angeles 47, Calif.

Central Athletic Association of the Deaf, 4157 W. 158th St., Cleveland 11, Ohio

Eastern Schools for the Deaf Athletic Association, W. Penna. School for the Deaf, Pittsburgh, Penna.

Eastern Athletic Association of the Deaf, 186 Ackerman Ave., Clifton, N.J.

Farwest Athletic Association of the Deaf, 3606 Kalsman Drive, Los Angeles 16, Calif.

Great Lakes Deaf Bowling Association, 23936 Edward, Dearborn, Mich.

Midwest Athletic Association of the Deaf, Olathe, Kan.

Northwest Athletic Association of the Deaf, P.O. Box 587, Vancouver, Wash.

Dixie Bowling Association of the Deaf, Box 4424, Fort Lauderdale, Fla.

The Midwest Deaf Golf Association, 2422 N. Keeler Ave., Chicago 39, Ill.

Pacific Coast Deaf Bowlers Association, 13-37 S. Highland Ave., Los Angeles 35, Calif.

Penn-Jersey Deaf Golf Association, Box 66, Bound Brook, N.J.

Southeast Athletic Association of the Deaf, P.O. Box 1062, Spartanburg, S.C.

Southwest Athletic Association of the Deaf, 5403 Tremont St., Dallas, Tex.

Southwest Deaf Bowlers Association, 126 So. Evergreen Lane, Wichita, Kans.

Northwest Athletic Association of the Deaf, P.O. Box 587, Vancouver, Wash.

Central States Deaf Bowling Assoc., 23936 Edward Ave., Deaborn, Mich.

D.C. Deaf Golf Association, 613 Hamlin St., N.E., Washington, 17, D.C.

SOCIAL WELFARE

Canadian Association of The Deaf, 81 Riverside Drive, Toronto, Ont.
International Catholic Deaf Association, 36 Boon Ave., Toronto, Ont., Canada
Order of Desoms (Dea Sons of Masons), 4458 Chestnut Court, Apt. 131, Seattle, Wash.
National Fraternal Society of the Deaf (See Insurance)
Oral Deaf Guild of America, 2219 S. Forest Ave., Lansing 10, Mich.
American Federation of Oral Deaf Parents, 2219 S. Forest Ave., Lansing 10, Mich.
American Lip Readers, 901 Washington Ave., Oak Park, Ill.
The Jewish Society for the Deaf, 171 W. 85th St., New York 24, N.Y.
National Society of the Deaf and the Hard of Hearing, 2 Bloor St. East, Toronto, Ontario, Canada
New England Gallaudet Association of the Deaf, 492 Laurel St., Longmeadow, Mass.
Social Service Conference for the Deaf, Gallaudet College, Washington 2, D.C.
Maritime Association of the Deaf, R.R. 2, Souris East, P.E.I.
National Film Library for the Deaf, 29 Cedar Ave., Farmingdale, L.I., N.Y.
National Association of the Deaf, 2495 Shattuck Ave., Berkeley 4, Calif.
Ontario Association of the Deaf, 557 Tweedsmuir Ave., Ottawa, Ont.
The United Parents of the Deaf, 2834 University Ave., New York 63, N.Y.
Western Canada Association of the Deaf, 285 Balmoral St., Winnipeg, Man.
The Harris Taylor Vacation Fund for Deaf Children, 150 W. 22nd St., New York 11, N.Y.

STATE ASSOCIATIONS OF THE DEAF

Alabama Association of the Deaf, School for the Deaf, Talladega, Ala.
American School for the Deaf Alumni Assn., 68 Richard St., New Britain, Conn.
Arkansas Association of the Deaf, 5115 F St., Little Rock, Ark.
California Association of the Deaf, 969 F. St., San Bernardino, Calif.
Colorado Association of the Deaf, 326 S. Grant St., Denver 9, Colo.
Florida Association of the Deaf, Secy., Jacksonville, Fla.
Georgia Association of the Deaf, 238 Third Ave., S.E. Atlanta, Ga.
Idaho Association of the Deaf, 1114-16 Main St., Lewiston, Idaho
Illinois Association of the Deaf, 3805 W. Harrison St., Chicago 24, Ill.
Indiana Association of the Deaf, 927 S. Delaware St., Indianapolis, Ind.
Iowa Association of the Deaf, Manly, Ia.
Kansas Association of the Deaf, 1045 N. Waco, Wichita, Kans.
Kentucky Association of the Deaf, Danville, Ky.
Louisiana Association of the Deaf, 4160 Capitol Heights, Baton Rouge, La.
Maine Association of the Deaf, Falmouth Foreside, Me.
Maryland Alumni Association of the Deaf, 3011 Woodhome Ave., Baltimore 14, Md.
Clarke School Alumni Association, 170 Adams St., Dedham, Mass.
Boston School for the Deaf Alumni Association, 301 Washington St., Weymouth, Mass.
Michigan Association of the Deaf, 2505 Begole St., Flint, Mich.
Minnesota Association of the Deaf, 2223-19th Ave., N.E., Minneapolis 18, Minn.
Missouri Association of the Deaf, 4241 Prospect Ave., Kansas City, Mo.
Montana Alumni Association of the Deaf, 204 So. 10th Ave., Bozeman, Mont.
Nebraska Association of the Deaf, 515 So. 31st St., Omaha, Neb.
New Jersey Alumni Association of the Deaf, 610 Liberty St., Trenton, N.J.
Empire State Association of the Deaf, 70 Riverside Ave., Buffalo, N.Y.
North Carolina Association of the Deaf, 126 Ingle St., Charlotte, N.C.
North Dakota Association of the Deaf, 701-8th St., Devils Lake, N.D.
Ohio Federation of Organizations of the Deaf, 35 W. Riverglen Drive, Worthington, Ohio
Oklahoma Association of the Deaf, 403 S. Penn, Shawnee, Okla.
Oregon Association of the Deaf, 1832 McClellan St., Portland 17, Oregon
Pennsylvania Society for the Advancement of the Deaf, 9549 Milnor St., Philadelphia 14, Pa.
South Carolina Association of the Deaf, 1504 Wildwood Ave., Columbia, S.C.

South Dakota Alumni Association of the Deaf, R.R. 2, Sharman, S.D.
Tennessee Association of the Deaf, 307 Maple Loop Rd., Knoxville, Tenn.
Texas Association of the Deaf, Secy., 5329 Belmont, Dallas, Texas
Utah Association of the Deaf, 3515 Harrison Blvd., Ogden, Utah
The Austine School Alumni Association of the Deaf, Ascutney Blvd., Windsor, Vt.
Virginia Association of the Deaf, 4320 Raleigh Ave., Alexandria, Va.
Washington State Association for the Deaf, 6516 Buena Vista Drive, Vancouver, Wash.
West Virginia Association of the Deaf, 5209 B. Moyes Ave., Charleston, W. Va.
Wisconsin Association of the Deaf, 4068 N. 13th St., Milwaukee 9, Wis.

CORRESPONDENCE SCHOOLS FOR THE DEAF

Correspondence Course for Deaf Pupils, 3407 Estelle St., Hapeville, Ga. This course is affiliated with the Home-Study Department of the University of Chicago, Chicago.
The Hadley Correspodence School for the Blind, College Dept., 62 Lincoln Ave., Winnetka, Ill. Correspondence Courses for the deaf-blind.
John Tracy Clinic, 924 W. 37th St., Los Angeles, Calif. Correspondence Courses for parents of deaf children.

PERIODICALS ON THE DEAF *

EDUCATIONAL

The American Annals of the Deaf, Gallaudet College, Washington 2, D.C.

The Volta Review, The Volta Bureau, 1537 35th St., N.W., Washington 7, D.C.

Hearing News, American Hearing Society, 817 14th St., N.W., Washington 5, D.C.

Parents' News Letter, The Parents' Association, Lexington School for the Deaf, 904 Lexington Ave., New York 21, N.Y.

Parents' News Letter, The Clarke School Parents' Conference, Northampton, Mass.

The Parents' News (Parents' Assoc. Beverly School for the Deaf), 344 Essex St., Salem, Mass.

Sigma Alpha Eta Newsletter, Speech & Hearing Clinic, Mount Mercy College, Pittsburgh 13, Penna.

The Record of Sixteen Children, Parent-Child Training Institute, 1375 E. 60th St., Chicago 37, Ill.

Newsletter of Teachers of Deaf & Hard of Hearing (Council of Day School Teachers of the Deaf & Hard of Hearing), Board of Education, Rochester, N.Y.

Quarterly, Michigan Association for Better Hearing, 407 Hollister Bldg., Lansing 8, Mich.

Vox Magazine—Voice of the Deaf, 200 W. 34th St., Suite 1601, New York 1, N.Y.

The Guild Messenger (Calif. Guild for Deaf and Hard of Hearing Children), 4912 Denny Ave., N. Hollywood, Calif.

The Clarion (Calif. Assoc. for Aural Education), 1002 E. St. John's Place, Hemet, Calif.

EDUCATIONAL (Miscellaneous) **

The Journal of Speech and Hearing Disorders, 321 Illini Hall, The University of Illinois, Urbana, Ill.

Journal of Exceptional Children, National Education Association, 1201 16th St., N.W., Washington 6, D.C.

The Journal of the Acoustical Society of America, 57 E. 55th St., New York 22, N.Y.

Special Education Newsletter, California State Dept. of Education, Bureau of Special Education, Sacramento 14, Calif.

Special Education News Briefs, Oregon State Dept. of Education, Div. of Special Education, Salem, Oregon

The National Catholic Educational Ass'n. Bulletin (Report of the Proceedings and Addresses), The National Catholic Educational Association, 1312 Mass. Ave., N.W., Washington 5, D.C.

ICEC Bulletin, International Council for Exceptional Children, National Educational Assoc., 1201 - 16th St., N.W., Washington 6, D.C.

Proceedings of the National Educational Association, National Education Association, 1201 16th St., N.W., Washington 6, D.C.

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*Courtesy of the *American Annals of the Deaf.* For a more complete listing for the professional, see *The American Annals of the Deaf* 1952, Vol. 97, No. 1, pages 156-175.

**These periodicals contain articles or abstracts on the deaf, deafness speech reading, etc., from time to time.

Valor, American Federation of Physically Handicapped, Inc., 1370 National Press Bldg., Washington 4, D.C.
Performance—The Story of the Handicapped, The President's Committee on National Employ the Physically Handicapped Week, U.S. Dept. of Labor, Washington, D.C.
Research Relating to Children, Clearinghouse for Research in Child Life, Children's Bureau Federal Security Agency, Washington 25, D.C.
Bulletin on Current Literature of the National Society for Crippled Children and Adults, National Society for Crippled Children & Adults, 11 South La Salle St., Chicago 3, Ill.
Child Development Abstracts and Bibliography, Society for Research in Child Development, National Research Council, 2101 Constitution Ave., Washington 25, D.C.
Child Development, Society for Research in Child Development, National Research Council, 2101 Constitution Ave., Washington 25, D.C.
School Life, Federal Social Security, Office of Education, Washington 25, D.C.
American Journal of Physical Medicine (Formerly Occupational Therapy and Rehabilitation), Medical School, University of Wisconsin, Madison 6, Wisconsin
The Crippled Child, National Society for Crippled Children & Adults, 11 S. LaSalle St., Chicago 3, Ill.
Psychological Abstracts, The American Psychological Association, Inc., 1515 Mass. Ave., N.W., Washington 5, D.C.
Journal of Rehabilitation, The Journal of Rehabilitation, 1025 Vermont Ave., N.W., Washington, D.C.
Selected Rehabilitation Abstracts, Office of Vocational Rehabilitation, Federal Security Agency, Washington, D.C.
Cerebral Palsy Review, 2400 Jardine Drive, Wichita 14, Kans.
The Quarterly Journal of Speech, University of Missouri, Springfield, Mo.
Speech Monographs, Speech Department, Ohio State University, Columbus, Ohio

DEAF-BLIND

Touch and Go, 15 West 16th St., New York 11, N.Y.
Good Cheer, 712 Madison St., Topeka, Kan.
The Skylark, 731 Williamson St., Madison 3, Wis.
The Lantern, Perkins Institution, Watertown 72, Mass.

MEDICAL

The Laryngoscope (Journal on Diseases of the Ear-Nose-Throat), The Laryngoscope Co., 640 S. Kingshighway, St. Louis, Missouri
Archives of Otolaryngology, American Medical Assoc., 535 N. Dearborn St., Chicago 10, Ill.
Annals of Otology, Rhinology and Laryngology, St. Louis, Mo.
Journal of Laryngology and Otology, 109 Kingsway, London, W.C. 2, England
The Eye, Ear, Nose & Throat Monthly, Room 1800, 5 N. Wabash Ave., Chicago 2, Ill.
Acta Oto-Laryngologica, Acta Oto-Laryngologica, Vapnargatan 6, Stockholm, Sweden
Excerpta Medica, Sec. XI on Oto-, Rhino-, Laryngology (Contains a part on Education of the Deaf), Excerpta Medica, 111 Kalverstraat, Amsterdam C., The Netherlands
Current List of Medical Literature, Army Medical Library, 7th St. & Independence Ave., S.W., Washington 25, D.C.
Transactions, American Academy of Ophthalmology and Otolaryngology, 100 First Avenue Bldg., Rochester, Minn.
The Transactions (American Laryngological, Rhinological & Otological Society, Inc.), 640 S. Kingshighway, St. Louis 10, Mo.
The Transactions (American Otological Society), Mayo Clinic, Rochester, Minn.
Quarterly Review of Otorhinolarynology, Washington Institute of Medicine, 1708 Massachusetts Ave., N.W., Washington 6, D.C.

Digest of Ophthalmology and Otolaryngology, 521 Rood Ave., Grand Junction, Colo.
Journal of the American Medical Association, American Medical Assoc., 535 N. Dearborn St., Chicago 10, Ill.
Today's Health, American Medical Assn., 535 N. Dearborn St., Chicago 10, Ill.

SPEECH AND HEARING

The Speech & Hearing Therapist (Indiana Speech & Hearing Association), Public Schools Office, Evansville 8, Ind.
The Ohio Speech & Hearing Therapist, Ohio University, Athens, Ohio
The Speech Therapist (Iowa Speech & Hearing Assoc.), Iowa State Teachers College, Cedar Falls, Iowa
New England News on Lip Reading, 35 Baltimore St., Lynn, Mass.
Auricle, National Auricular Foundation
The Speech and Hearing News (Okla. Speech & Hearing Therapy), 612 W. Shorb, Alhambra, Calif.

TRADE

The National Hearing Aid Journal, 309 Commerce Bldg., Sioux City 9, Iowa
What's New in Hearing, Maico Foundation for Better Hearing, Maico Co., Inc., Maico Bldg., Minneapolis 1, Minn.
Have you heard? The Maico Co., Inc., Maico Bldg., Minneapolis 1, Minn.
Better Living, A Bulletin for Sonotone Users, Sonotone Corp., Educational Dept., 570 5th Ave., New York, N.Y.
The Hearing Dealer (International Hearing Aid Assoc.), 421 Fifth Ave. So., Minneapolis 15, Minn.
The Hearing Aid Industry, John C. Bridges, Bridges Publishing Co., 1505 Eleanor Ave., St. Paul 5, Minn.

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ADDITIONAL REFERENCES

SECTION IV

CHAPTER IV

THE HARD OF HEARING

THE HARD OF HEARING, BY ELEANOR C. RONNEI

PLAY THERAPY FOR THE HARD OF HEARING, BY NED RUSSELL

RECOMMENDED STANDARDS FOR AUDIOLOGY CENTERS

HEARING AIDS, BY EDITH L. R. CORLISS

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE HARD OF HEARING

ELEANOR C. RONNEI

The sensory deficiency called 'deafness' has been recorded in the literature of every nation from Biblical times. A person thus afflicted was more or less a social outcast; he couldn't understand his fellow men and in turn couldn't make himself understood by them. Barring an outright miracle, his case was hopeless.

But in the last fifty years, due in part to society's growing appreciation of the worth of the individual, and in part as a result of newer knowledge of man's physical, mental, emotional and sensory make-up, those afflicted with impaired hearing have been shown how to lead happier, more useful lives.

The Deaf and the Hard of Hearing

Until the early 1900's everybody with a hearing loss was classified as 'deaf'. More often than not the word 'dumb' was added to indicate either lack of speech or mentality. Now that we are learning more about hearing and the effect of its widely variable quantitative and qualitative aspects, the blanket term 'deaf' is no longer adequate for planning educational and rehabilitative programs. Somewhat more precise and descriptive terminology is found in the two currently accepted classifications of 'deaf' and the 'hard of hearing.' The prognosis of communication competency is the line of division. Thus the deaf are defined as those individuals whose profound hearing loss precludes their learning of speech by the natural method of imitating the sounds they hear. Although most deaf children can be taught to communicate by speech and lipreading, their competency does not often approach the average achieved by the statistically much larger group called the hard of hearing. The hard of hearing are defined as those who have, or have had, enough hearing either with or without a hearing aid to acquire speech and language through the auditory pathway. The difference between these two groups is not an arbitrary one based on a percentage or decibel loss of hearing or even complete absence of hearing. For example, a young physician who lost all of his hearing following meningitis is classified hard of hearing rather than deaf. Speech retention and lipreading (speech reading) instruction have kept his ability to speak and understand others at peak functioning.

This terminology is not meant to infer that anyone with a hearing loss 'belongs' to either group. It should, by describing the communication potential, make more realistic educational and rehabilitative program planning possible for everyone with a hearing impairment. The need for different classification will probably always exist, but it is hoped that within the next generation medical science, educational methodology, and better hearing aids will increase the ability of a greater number of hearing impaired persons to communicate more normally.

How many hard of hearing individuals are there? Somewhere near sixteen million people in the United States, or about ten per cent of the total population, have a hearing problem. About one hundred thousand are deaf according to the definition in the foregoing paragraph; the rest are hard of hearing. Hearing loss is found in about five per cent of the boys and girls in the schools, in grades from kindergarten through high school. Projected on United States census figures, this means that one million, seven hundred thousand, of our thirty-four million public school children have hearing problems. Schools for the deaf in the United States have an enrollment of about twenty thousand deaf and hard of hearing children; some three thousand hearing handicapped children are taken care of in public day schools and private schools; the remaining one million, five hundred and eighty thousand hard of hearing children are scattered throughout the general school population of the nation, with little or no provision for their special needs.

These incidence figures may differ somewhat from statistics found elsewhere in this text. The disparity is to be expected because of differing terminology, reference levels, the lack of a central registry and the hidden cases of hearing loss among the multiple handicapped.

Hearing Loss on the Increase

In spite of the advances in medicine in general, hearing loss seems to be on the increase and there is still no medical cure for established deafness. Many reasons are given for this apparent increase:

1. The lengthening of the life span with its inevitable slowing up of all sensory processes accounts for many cases of handicapped deafness among the aged.
2. An increase in hearing loss is noted among infants whose lives are saved by modern medical science, the premies, Rh factor and tubercular meningitis cases in particular.
3. Occupational deafness occurs when the delicate mechanism of the ear is unable to stand the physical pressure and constant loud noises of modern industry.
4. The complete health examination using better instrumentation for hearing tests discloses a statistically significant number of cases not previously acknowledged.

5. The demands made on hearing spotlight minor defects that were overlooked a few years ago. The social structure has changed from a personal family unit in which the members could communicate without words to a highly competitive, impersonal society in which there is no time for understanding anything but symbolic language. Education today requires more skill in hearing and speech as the oral discussion method of teaching takes precedence over the silent reading technique. Amusements do, too — contrast television, radio, and drive-in movies to parlor games of the past.

6. World War II brought many hearing handicapped individuals into the employment market where they proved their value as workers.

7. Better hearing aids, worn openly, provide visible evidence of hearing impairment and increase the public awareness of the universality of the problem.

THE ROLE OF HEARING IN THE PERSONAL DEVELOPMENT OF THE INDIVIDUAL

To appreciate the effect of loss of hearing on the sixteen million individuals in our midst, it is necessary to understand the role hearing plays in the development of an individual. Nature apparently considers hearing of prime importance for species survival, for in humans and animals hearing is one sense that is ready to function at birth. In the human foetus, the ear is developed to practically adult size in the early months of pregnancy. A baby quail is scarcely dry before it 'freezes' at the slightest sound. Animals use various sounds to warn each other of danger; only those able to heed the signals will survive. Dr. Edmund P. Fowler, Sr. suggests that human hearing may be deteriorating because of lessening importance for survival. Certainly the human race permits its hearing impaired to survive better than animals do.

Hearing functions as a prime means of contact with people and surroundings. Day or night, around corners, through solid barriers like walls, man maintains contact with fellow beings and environment both at a distance and close by. Impaired hearing reduces the number of personal and environmental contacts; therefore, a person with limited hearing ability often seems to be a 'lone wolf'.

Third, and perhaps most important to man today, is the role that hearing plays in the learning of speech and language. We learn to speak as we hear and because we hear. The more severe congenital hearing impairments are likely to result in a commensurate limitation of the projective use of symbolic language. Words are heard, but not often enough or with strong enough association for real understanding of the words in the context. In the language sense, therefore, words do not become tools of thinking, imagination and memory. As a result, the individual is relatively inept in the using of symbolic language both to express himself and to understand others. If hearing loss occurs after language as well as speech is developed, — and many of the hard of hearing are in this category, — there is much less damage to this aspect of intellectual functioning.

Fourth, the hard of hearing person tends to conform to the label society gives him. For centuries society has linked the word 'deaf' with the word

SENSORY TRAINING IS METHOD FOR DEVELOPMENT OF ORAL SPEECH IN HARD OF HEARING

Cleveland Hearing and Speech Center, Cleveland, Ohio

HEARING AT TWO, AND RESPONDING TOO.

Junior High School 47, New York City

GROUP AUDITORY TRAINING IS MEANS TO LANGUAGE BUILDING IN HARD OF HEARING

Cleveland Hearing and Speech Center, Cleveland, Ohio

"CAN YOU DO THIS?" TONGUE EXERCISES
Speech Correction Class, Oregon Public Schools, Portland, Oregon

SPEECH CORRECTION CLASS IN A REGULAR ELEMENTARY SCHOOL
Los Angeles City Schools, Los Angeles, California

'dumb'. The use of the word 'dumb' is understandable, but no less regrettable, when we consider its origin in society's thinking. It expresses the feeling of an individual when he is unable to understand or make himself understood by others and is a handy word to apply to others who manifest the same difficulty. Users of this term are unaware of two facts. Practically no hearing handicapped persons are functionally dumb; they have normal speech mechanisms and they do produce sounds. Their mental abilities follow the normal curve of intelligence; as a group they are not mentally inferior. Yet society's label does stick, and some hard of hearing conform because it is the easiest adjustment they can make.

Fifth, hearing does not look disabling and no one ever dies from it. Thus, the public as a whole has little interest or understanding of the difficulty a hard of hearing person encounters. Furthermore there is no way in which a normally hearing individual can experience the handicap himself. It is impossible to enter the world of the hard of hearing even in imagination. Sounds cannot be completely blocked out temporarily except by the highly dangerous method of acoustic trauma or drugs that result in permanent disability. Consequently, understanding of the emotional aura along with the intellectual and social aspects of hearing loss is difficult for most people to achieve.

Sixth, because hearing impairment is the particular acoustic, sensory problem of each individual, its varying effects are as numerous as the persons they represent. Hearing impairment has no yardstick, percentage or numerical approximation that is of help to public understanding.

Sciences Concerned with Hearing

Hearing is the end result of a sensory process that begins with a physical vibration called a sound wave. Many sciences are involved in understanding the transmutation of a sound wave into a mental concept. To understand this complex process, it is necessary to integrate and use pertinent facts that are a part of the body of knowledge assembled by the basic sciences. In recent years the term audiology has come to mean the science of hearing. It represents not a separate body of knowledge about hearing, but the pooling of all knowledges for the benefit of the hearing handicapped. Audiology uses the knowledge physics has amassed in its analysis and measurement of sound in hearing tests, otological diagnosis, and the development and fitting of hearing aids. The most elemental facts are briefly sketched in the following paragraph.

Physicists begin the study of sound with an analysis of its pitch or tone. To audiologists, pitch is the basic sensory stimulus of hearing. It is produced when an object, like a violin string, is set into the characteristic back and forth motion known as a cycle, or vibration. If the string completes the motion or cycle two hundred and fifty times per second, the sound of middle C on the piano is produced. The human ear is capable of perceiving a wide range of pitch from a low of 20 cps to a high of 20,000. There is, of course, a wide and complex variation of individual ability to function within its broad scope. A limited range covering the sounds from 300 to 3000 cps, the pitch range of a telephone, satisfies minimum requirements for hearing and understanding speech. For the finer dissemination of speech sounds, as that involved in telling 'sign' from 'fine' without contextual help, a range up to 6000 cps is desirable. Hi-fi music lovers would not be satisfied with much less than 10,000 cps for a top frequency limit. Animals can hear and instrument can measure the much higher or ultrasonic sounds not of use in human hearing.

Physicists have learned to measure the second attribute of sound, its intensity or loudness, in terms of an energy ratio called a decibel or db. Reduced to over-simplified terms, a decibel indicates a just perceptible change in loudness of a sound. The average human ear can hear sounds of many degrees of loudness from the faint, just heard sound at zero db up to the uncomfortably loud one at 100. High intensity sounds from 100-120 db 'tickle' the ear, and those measured at 120-140 db are downright painful.

Using these principles and the inverse square law, audiologists are able to predict the distance at which individuals with varying degrees of hearing loss will be able to function in comparison to normally hearing persons. An individual with a 70 db hearing loss will hear at a distance of five inches the same speech that his normally hearing friend hears at 40 feet.

An average whisper is 30 db loud, and average conversation is carried on at a 60 db level. If a youngster playing Indian war whoops within six inches of the ear, his voice may reach 100 db. Interpretation of the handicap of loss of hearing is made on the basis of decibel loss. For example, a person with a 60 decibel hearing impairment will not hear the whisper at all; the average conversation will be barely perceptible, or not loud enough to understand, and the Indian yell just comfortably loud.

A very general classification of hearing losses prepared by the Committee on Hearing of the National Research Council is reprinted here.

Scale of Degrees of Hearing Loss

(*Prepared by the Committee on Hearing of the National Research Council*)

N.B.: The classes are defined by "decibels loss of hearing for speech." Until suitable technical facilities for direct measurement by speech audiometry are available, the loss of hearing for speech shall be calculated from pure-tone air-conduction measurements by averaging the hearing losses at 500, 1000, and 2000 cycles per second, or at 512, 1024, and 2048 cycles per second if the available audiometers are so calibrated. A person should be classified one class lower than indicated by the average value if, with an average loss of 10 decibels or more, his hearing loss for any one of the three frequencies is greater by 25 decibels (or more) than the least of his three losses.

Class	Name	Loss for speech, in decibels (db)	Remarks
A	Normal	Not more than 15 in worse ear.	Both ears within normal limits. No difficulty with faint speech.
B	Near normal	More than 15 but not more than 30 in *either* ear.	Has difficulty only with faint speech.
C	Mild impairment.	More than 30 but not more than 45 in *better* ear.	Has difficulty with normal speech but not with loud speech.

D	Serious impairment	More than 45 but not more than 60 in *better* ear.	Has difficulty even with loud speech.
E	Severe impairment.	More than 60 but not more than 90 in *better* ear.	Can hear only amplified speech.
F	Profound impairment.	More than 90 in *better* ear--	Cannot understand even amplified speech.
G	Total loss of hearing in *both* ears.		Cannot hear any sound.

Tests of Hearing

It is no longer necessary and certainly neither advisable nor safe to wait until the classic symptoms of hearing impairment show themselves. Modern scientific tests have been devised to serve the public in three ways: to identify the hard of hearing individual so he can be helped and understood, to aid in the medical diagnosis, and to serve as guide lines for educational and vocational planning if the loss is irreversible.

A variety of such tests are available today. All measure the quantity of sound in decibels. Some also measure the quality of sound in terms of pitch, while still others measure the speech understanding of the listener. Some are rough screening tests which aim only to find those who have hearing that deviates from the norm; other highly specialized diagnostic tests are used in medical diagnosis, medico-legal cases, and in individual case planning.

The gross test most widely used in education and industry today to screen the deficient in hearing from the normal is called the sweep check test. Using a standard pure tone audiometer, it is possible for a non-specialist examiner to test the hearing of fifteen to twenty persons per hour. Standard procedure requires that an individual respond when each of seven pitches (300-500-1000-2000-4000-6000-8000 cps) is presented to him at an intensity of 10 or 15 decibels. Failure to hear at least five of the seven tones indicates the need for a more thorough test of hearing.

Extensively used in the past, and of considerable practical value, is the phonograph or fading numbers test in which numbers beginning at a loudness level of 30 db and fading to a 3 db are recorded on a special form. Those who fail to record numbers correctly at the loudness level of 9-12 are referred for further testing.

A complete pure tone audiometric test is recommended as a follow up on all those who fail the sweep check or phonograph screening test. This type of test substantiates or disproves previous results and also serves as a basic test for all audiological and otological evaluations of hearing. The validity of this test is generally high when a properly calibrated instrument is used by a competent examiner in a sound deadened room, and when the listener is both willing and able to respond.

A galvanometer, a 'lie detector' type of instrument, is now being used in some places to record the responses of very young children, and of the psychic deafened and malingerers. In audiological circles there is some difference of opinion concerning this test. Certainly much research is needed in educational follow-up procedures and actual technique of testing before its results can be unquestionably accepted as a true picture of the individual's hearing.

The patient's air and bone conduction responses to pure tones in a seven or eight octave range are recorded at db intensity levels of minimum audibility on a chart called an audiogram. Because some pathologies of the hearing mechanism have characteristic audiometric patterns, the graph is used as a diagnostic tool by otologists. Audiologists use it, too, in planning programs of speech training and auditory comprehension and in making adjustments on hearing aids to meet individual needs.

Audiograms can be 'read' by anyone who knows that the numbers on the base line represent pitches at octave intervals and those on the vertical line represent decibel loudness values in steps of 10 from 0 (zero) to 100 db. The symbols for recording right and left ear responses by air and bone conduction are shown on the chart. The interpretation of the graph, however, requires a thoughtful and detailed evaluation by a specialist.

The four following audiograms, with a probable interpretation of each graph, will describe briefly the handicap imposed by varying qualitative hearing losses. The first three audiograms represent approximately the same mount or quantity of hearing impairment, but show vastly different quantitative hearing impairment. The fourth is a unilateral case.

This case has been diagnosed as conduction deafness, caused by severe middle ear infection. In general, this person understands speech well when the sound is loud enough and close enough to him. He seems to hear better in noisy places like the subway or a moving car. He understands some voices quite well on the phone and would have little difficulty if an amplifier were used. His own voice is likely to be somewhat breathy and less loud than the average. Articulation will follow environmental patterns.

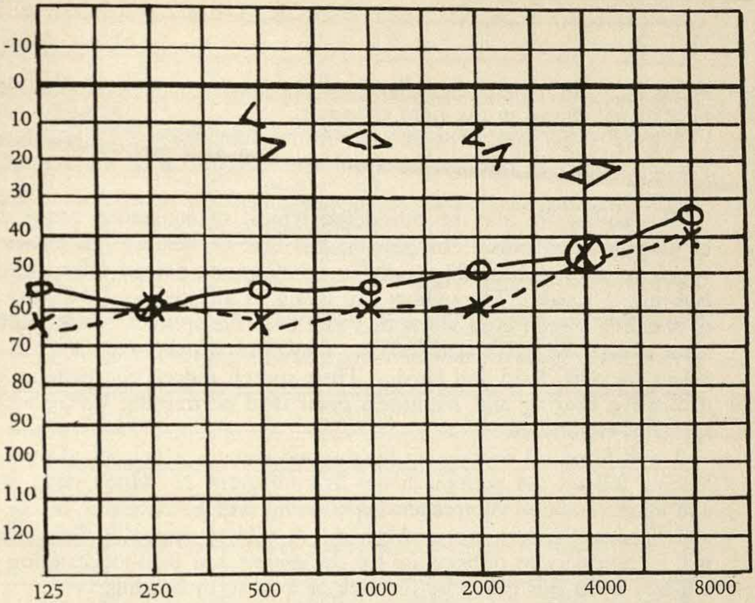
A hearing loss of this kind and amount will show itself from the beginning, — thus a four year old with a new loss will not answer when called from a distance and frequently becomes a chronic 'whater'. A 12 year old boy would find that he can no longer do home work successfully over the telephone or pick up football signals in a huddle. A thirty year old stenographer may find her present job impossible because she cannot take dictation or telephone messages.

All three individuals will be able to wear hearing aids very well. Although bone conduction aids can be used to advantage, an air conduction aid will probably be the wiser choice. Once accustomed to the aid, each of the three will hear average speech at fifteen to twenty feet when he is listening attentively.

The 4 year old will require intensive speech and language training, as well as lipreading and auditory comprehension to keep his communication skills moving. The 30 year old will benefit from concentrated lipreading instruction and auditory comprehension training until the aid becomes a part of her life and her confidence in communication is restored. Periodic speech and voice analysis should suffice to maintain good speech patterns.

Both 4 and 12 year old children should be educated in neighborhood schools with their normally hearing playmates. Intensive and continuous compensatory skill training will enable both youngsters to learn at their own rates. The younger child may require 'starter' help in basic reading skills

1

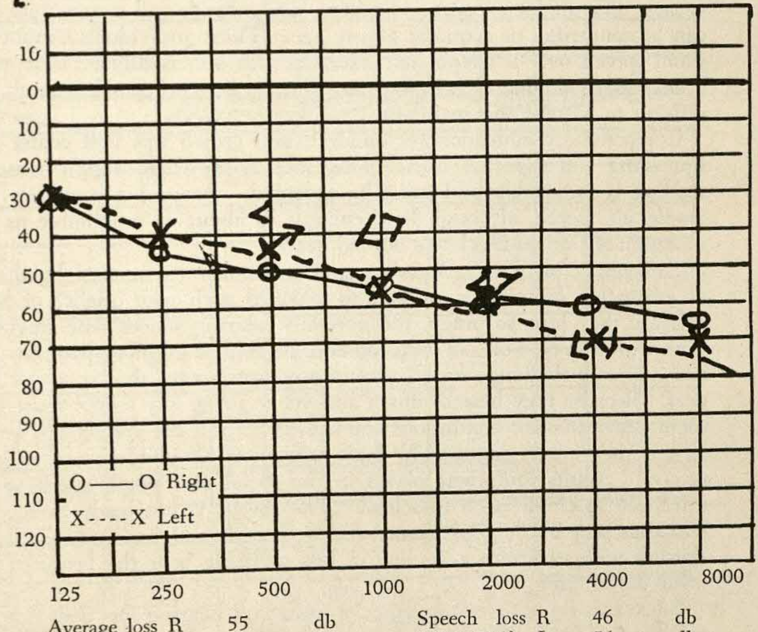


Average loss R 49 db
L 53 db

Speech loss (500-4000) R 51 db
L 57 db

A.M.A. % loss 58%
(both ears)

2



Average loss R 55 db
L 57 db

Speech loss (500-4000) R 46 db
L 56 db

A.M.A. % loss
(both ears) 66%

as well. Continuous counselling will be necessary to keep the children's educational course in the right channels.

A shift in the kind of work may be necessary for the 30 year old, but a job opportunity in the hearing world can be found with the help of a wise counsellor.

This audiogram may be considered typical of congenital nerve deafness of undetermined cause. In general, this type of hearing loss shows up between the ages of 12 to 20 months in an otherwise normal infant who is not learning to speak. Throughout life many so afflicted find difficulty in understanding speech even when they can hear the speaker. Most individuals seem to hear better in quiet places; they find telephoning difficult. Their voices are often loud and harsh. Their speech reflects the patterns of poor qualitative hearing and requires a great deal of training before acceptable speech is established.

A well fitted aid conduction hearing aid usually is helpful to those whose hearing follows the pattern shown in audiogram 2. Much more intensive and longer auditory comprehension training will be necessary before speech and hearing patterns are established. A higher degree of lipreading skill will be necessary to compensate for the greater loss in understanding speech imposed upon this group by the lack of quality in hearing.

If fitted with hearing aids at an early age, most of these children can be taught communication skills that will permit them to enter normally hearing schools. Normal progress in a hearing school is possible for them if they are given a chance and enough help in the language skills.

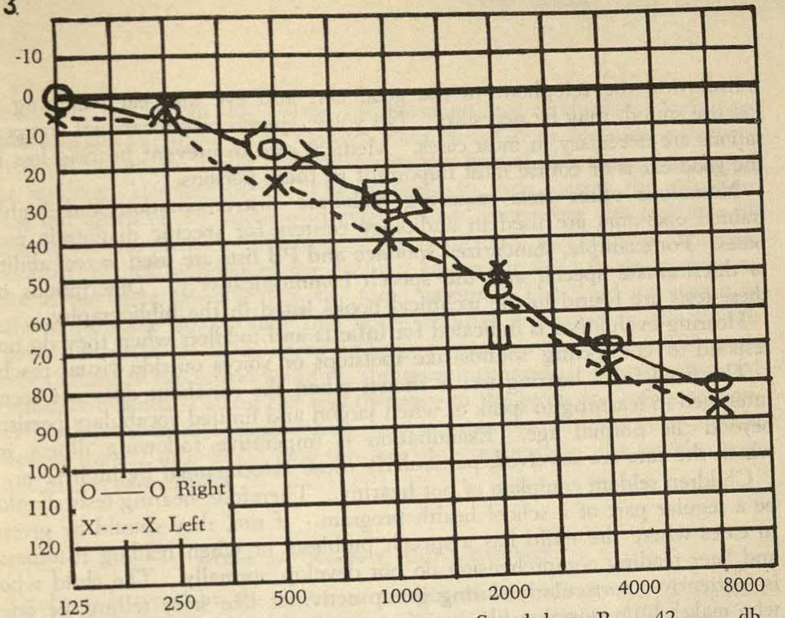
Audio 3 shows a severe high frequency loss, a type of nerve deafness that is most difficult for everyone to accept, understand, and compensate for. It can be congenital or acquired at any age. These individuals cannot understand speech over a telephone. Hearing aids are usually of little value to them. If congenital or acquired at any early age acceptable speech is very difficult to acquire and maintain.

Compensatory education for children and grown ups will center around lipreading and speech. Social difficulties arise where supplementary lipreading is impossible and must be accepted. Around a campfire, for example, all speech, although loud enough, is about as intelligible as a poor imitation of Donald Duck to a normal hearer.

Otologists, teachers, and audiologists are constantly amazed by the range of adaptation individuals are able to make to such poor quality of hearing. Because they hear so much, the normally hearing school will provide children with this type of loss with the best all around auditory patterns to copy and a greater challenge for all around accomplishment than a school for the deaf. Because they hear so much and yet so little, any school must provide them with extensive continuous and skilled help in the speech and language area if they are to acquire the basic education all children are entitled to receive. Adults find their places in the social and employment world as uncertain as children do in school. The public is not ready to accept the fact that people who hear *some* all the time do not hear *all*, all the time. Persons with so severe a qualitative loss probably bear the brunt of public misunderstanding.

Since ears do not work together, a unilateral hearing loss does not handicap most individuals to any great extent. Some accommodations, such as

3.

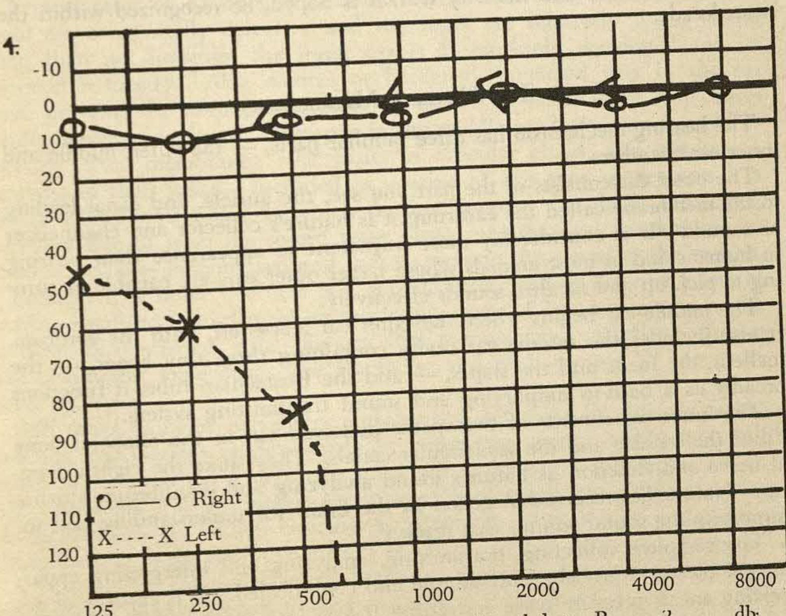


Average loss R 42 db
L 46 db

Speech loss (500-4000) R 42 db
L 49 db

A.M.A. % loss (both ears) 47%

4.



Average loss R 3 db
L 82 db

Speech loss (500-4000) R 2 db
L 96 db

A.M.A. % loss (both ears) 13%

transferring the telephone to the good ear, and eye and ear searching to localize sound, may be necessary. No voice, speech or educational compensations are necessary in most cases. Medical care to prevent hearing loss in the good ear is of course most important to these persons.

Numerous other tests requiring elaborate instrumentation and highly trained operators are used in audiology centers for specific diagnostic purposes. For example, standarized spondee and PB lists are used to test ability to discriminate speech and use speech communicatively. Descriptions of these tests are found in the technical books listed in the bibliography.

Hearing evaluation is indicated for infants and toddlers when they do not respond to 'comforting' sounds like footsteps or voices outside visual reach.

The need for a hearing test is shown when the runabout does not seem interested in learning to speak or when jargon and limited vocabulary persists beyond the normal age. Examination is imperative following illness in which the ears are involved, particularly those accompanied by high fever.

Children seldom complain of not hearing. Therefore, hearing tests should be a regular part of a school health program. If not, they should be given in cases where the child has a speech problem, or when reading readiness and later reading comprehension do not develop normally. The child who is inattentive, particularly during group activities like story telling, or one who makes little mistakes like turning to page 'seven' instead of 'eleven' or writing 'man' not the required 'pan' in a spelling quiz, should be tested.

Hearing tests following all diseases of the ear should be routine for children and adults. The importance of pre-employment hearing tests and routine hearing tests in industry will, it is hoped, be recognized within the next decade.

The Hearing Mechanism

The hearing mechanism has three familiar parts, — the outer, middle and inner ear chambers.

The outer ear consists of the part you see, the auricle, and canal leading to the membrane called the eardrum; it is nature's collector and channelizer of sounds. It is considerably more important to appearance than hearing in humans and in most animals whose larger outer ears are capable of turning to pick up and localize sounds effectively.

The middle ear begins where the outer ear leaves off, with the eardrum. It also includes the middle ear cavity containing three tiny bones, — the malleus, the incus and the stapes, — and the Eustachian tube; it functions broadly as a built-in amplifying and sound transmitting system.

The inner ear consists of two spaces hollowed out in the temporal bone called the cochlea and the semicircular canals. They share the eighth cranial nerve and function as nature's sound analyzing and equilibrium apparatus. Nature has reserved a section in the brain for understanding and interpreting the sound stimuli that reach it.

The complete collecting, transmitting, analyzing and interpreting apparatus of the ear is unbelievably minute and complicated. It is capable of receiving an air pressure wave converting it first into a solid, then into fluid vibration and finally into an electrical impulse in 1/100th of a second! A vibration in the air, an undulating condensation and rarefaction of air particles, hits the ear drum with enough force to set it in identical vibratory movement. The ear drum then activates the first of the three tiny bones (the malleus) attached to it. The malleus, in turn, passes the vibration along the chain of the incus and stapes bones, increasing the loudness of the sound in the process. The stapes, 'pumping' back and forth in vibratory motion in the oval window of the cochlea, causes the fluid in the cochlea to move at the same speed and in the same pattern. The fluid movement is analyzed by some 20,000 hair like nerve endings immersed in the liquid. A particular group of these nerve endings responsible for the specific pitch corresponding to the sound picks up the sound, converts it into an electrical impulse, and sends it along the eighth nerve to the brain for interpretation. Any breakdown in this transmission process, from the wooden bead a child pokes in his ear to a blood clot the size of a pinhead in the cochlea, can result in loss of hearing.

MEDICAL SCIENCE AND DEAFNESS

Deafness is typed by the doctors according to the part of the mechanism involved. *Conduction deafness* means that the outer and middle ears are not functioning normally, whereas *perceptive deafness* indicates that the cochlear section is at fault. A diagnosis of *central deafness* is made when the pathology is in the brain itself.

Typical cases of conduction deafness occur when the external ear and canal are congenitally defective and the inner ear relatively intact (more often than not however, the inner ear is incompletely developed and its function reduced). Also, tumors or hardened, impacted wax in the ear canal prevents the normal movement of the air pressure wave and causes conduction type deafness. Abscesses in the middle ear leave torn, scarred or inelastic drum membranes, stiff joints in ossicular chain, and conduction deafness in their wake. Included as a cause of this type of deafness is a disease called otosclerosis, in which the last bone in the chain, the stapes, normally free to push the sound wave along into the oval window of the cochlea, becomes immobilized and fails to transmit the sound to the cochlea.

Perceptive or nerve deafness is a general term used to describe a loss of hearing resulting from damage to the fragile nerve of hearing housed in the cochlea. Blood-carried virus diseases like mumps, and infectious diseases like meningitis, some drugs, the Rh factor and birth trauma all can cause nerve deafness.

Still other forms of nerve type impairment are found in children whose mothers had German measles early in pregnancy. Some congenital nerve deafness occurs when a defective inner ear is inherited. External factors like explosions and continuous exposure to loud noises are common causes of nerve deafness. When concussions, fractures, hemorrhages and tumors cause damage to the receptive area of the brain, central deafness occurs.

Under severe emotional stress, hysterical deafness of psychogenic origin develops. Usually difficult to diagnose and treat medically, it poses a problem of equal difficulty in aural rehabilitation because the individual functions as a real hard of hearing person. Quite different in origin, treatment, and prognosis, and not to be confused with hysterical deafness, are the malingerers, who feign deafness to collect money in compensation cases.

Otology joined the ranks of medical specialties about 75 years ago. Before that the doctors were not specially interested in the tiny, inaccessible and complicated hearing mechanism or the diseases that affect its successful functioning. Since its elevation to a specialty, otology has produced disappointingly few cures for deafness. Within the last few years an operation called fenestration has been perfected; although not a cure for the disease known as otosclerosis, it offers some help to 'suitable' cases. Antibiotics which are effective against infections throughout the body have been of considerable help in treating the middle ear infections responsible for perhaps 50% of acquired deafness. These drugs are credited with control of meningitis, so that total deafness is no longer an inevitable result of that disease. Radium or x-ray is often used to reduce the size of adenoids around the Eustachian tube, and the removal of diseased or enlarged tonsils and adenoids is often a helpful measure in other conduction cases. The best and only 'treatment' for most nerve deafness seems to be in preventive measures.

Otologists have entered the public education field and are now waging early detection of hearing loss and adequate medical care of the beginning stages of deafness. In cooperation with safety engineers, they are studying the industrial noise problems that often result in handicapping deafness and costly lawsuits. In addition, they are becoming cognizant of their responsibility in the education and rehabilitation of the individuals they cannot cure.

The Ideal Program for Prevention of Deafness and Conservation of Hearing

An ideal program for prevention of deafness and conservation of hearing is one in which the prevention of deafness and the rehabilitation of the deafened becomes the joint responsibility of medical and educational agencies. Plans for preventing deafness and for making useful or returning to usefulness the hearing handicap seem to crystalize into three age groups, — infants and pre-school children, school age children, and adults. Common to all ages is the need for early case finding, prompt otological care, compensatory skills, including hearing aids where necessary, and public education for better understanding of the problems of deafness and the acceptance of the hard of hearing by society, schools, and industry.

The conservation of hearing program will reach its zenith when the separate responsibilities of each group are fulfilled by each group and co-ordinated in the interest of the individual. The diagnosis and treatment of ear diseases is, of course, the province of medicine. By the same token, the teaching of communicative skills is the specific business of the educators. The two groups share duties and responsibilities in programs for detection of hearing loss and in public education programs.

Some shifts of responsibility occur in the identification program. For example, the family doctor or pediatrician and the parents are in a better position to detect hearing loss in infants and pre-schoolers, whereas educational authorities are logically held responsible for periodic hearing tests of school age children. Family physicians and health departments in industry will assume authority for adult hearing tests as a part of the routine health and pre-employment examinations.

Much of society's apathy in dealing with the education of the hard of hearing is eliminated when the hearing status is accurately defined. Only then is it possible to bring the individual into true focus and to design and administer a wise program of basic education and special education or rehabilitation to meet the individual's specific needs. In this light, 90% of the educational requirements are usually found to be common to all persons; the remaining 10% can be met by special training in one or more of the communication skills.

Although the special skills training may take up only 10% of the program's time, this phase of the total education or rehabilitation may well prove to be the pence by which the pound of education will take care of itself. Without the special compensations, a child will fail to profit by the school program, or an adult will fail to find or hold a job.

Toddlers, school age children, and the young, middle aged and elderly adults will usually benefit from some training in lipreading and auditory comprehension; many of these will also require help in speech development correction or retention and the use of a hearing aid.

Some authorities like to call the special skills training 'education', and others prefer the term, 'auditory rehabilitation.' Still other specialists like to use the terms more selectively, reserving the latter for adults in whom a newly acquired or deteriorating functional loss of hearing necessitates a readjustment and realignment of the preceptive factors of communication. Compensatory education is then used to designate the original learning processes in children whereby a basic education and lipreading, hearing and speech are knit into a careful and complete plan of preparation for life in a hearing world. Redoing, or rehabilitation, should not be necessary for those who grow up hard of hearing if enough compensatory education of the right kind is provided at the right time.

It may sound trite, but it is true to say that communication skills can be and are taught to all people everywhere, — wherever people speak and by all persons who speak. This fact is the primary reason for a growing conviction among educators that a normally hearing environment provides the best possible training ground for the hard of hearing of all ages. The improvement of hearing aids and their more widespread acceptance, and the noticeable increase in training facilities for speech and hearing teachers should make a public education program for the hard of hearing feasible and available in the not too distant future. This philosophy is carried into practise for auditory rehabilitation of adults much more universally than it is for children. Since the two problems are so different, they should not be considered separately.

The Pre-School Child

Pre-school children who are hard of hearing are often neglected because their parents and their doctors still hold to the belief that a child will grow out of a hearing loss as inevitably as he grows out of his shoes. Other parents who seek a specialist's help for little hard of hearing children find that there are few facilities for the educational care their children need. Unknown to many such parents are the correspondence courses for mothers, summer institutes, hearing and speech clinics in hospitals, universities and social service agencies. All these organizations are doing an excellent pilot job of hearing aid fitting and educational follow up. Parent training is given top priority in most of their programs.

Most mothers, with the guidance of a specialist teacher, are willing, able, and available to do the major portion of basic speech and hearing language teaching of their hard of hearing small fry. In most centers the mothers listen in, if not sit in, on the speech, lipreading, and auditory comprehension lessons given to their youngsters, and carry on at home along the same lines. When the parents themselves are deaf according to the definition at the beginning of this chapter, a relative, friend or nursery school teacher often provides the necessary opportunity for a constant practice of skills outside the center.

The cost of the long-term service on a private basis is prohibitive to many parents. In some states, the Department of Health supplies the therapy, but in too many cases youngsters are not given the running start of pre-school service because public facilities are not ready to provide it and parents cannot afford it.

The aim of this service for pre-schoolers is accomplished when the youngster's ability to speak and hear makes him acceptable in his neighborhood school. He will probably be the only member of the button club in his class, his speech and language may not be "average" and his distance hearing may be sharply reduced, but in all other respects he is a typical kindergartner. Once he enters school a shift of direct responsibility for the total education program occurs. As the greater proportion of the actual teaching becomes a school function, the parents' role shifts from that of stellar attraction to supporting cast.

THE SCHOOL AGE CHILD

Children with hearing impairments have been in regular schools since public education began. Sometimes labeled slow learners or shy, inattentive children, they were accepted because there was no place else to send them, nothing else to do. As they outgrew the classroom furniture, they were promoted to a room with larger desks, but no other effort was made to fit the school to the child.

In schools today the hearing problem is more often recognized than it was in the past, yet hard of hearing children still find the going rough in many schools, — the new label does not help when the school is not ready to offer them the special help they need as well as an opportunity for basic education. It is perhaps unfortunate that the practice of educating the hard of hearing children in regular schools is being urged on school authorities at this time. Boards of education and school administrators are pushed to the limit in providing four walls for their expanding school population. Teachers already burdened with excessive loads do not welcome new problems.

There are too few teachers everywhere, including speech and hearing specialists. There is no extra local money available for increased service to a minority group such as the hard of hearing. Many states have not amended their laws to support a new program and continue to budget $1500-$2000 a year for a hard of hearing child in a school for the deaf, yet fail to allocate a penny extra to a local school district that takes over the total education of the same child at a fourth to a third that cost.

In spite of these difficulties, schools are beginning to realize that providing equal opportunity for all children does not imply that all children are precisely the same; instead, it suggests the need of curriculum adaptation to the child's need to achieve his goal. Well trained teachers of speech and hearing skills are beginning to be available, public understanding and acceptance are growing, and antiquated laws are being revised as the program gains momentum. In ten years more perhaps it will roll on its own.

THE ADULT EDUCATION PROGRAM

The need for manpower to keep industry moving when the 'able bodied' were at war gave impetus to the employment of the hard of hearing adult in both World Wars. Programs of auditory rehabilitation for hearing casualties of both wars, developed by the armed services are now used as models by state vocational rehabilitation agencies. These services, augmented by those established forty-five years ago by Societies for the Hard of Hearing, aim to meet the needs of the adult hard of hearing population today. The services of university and hospital hearing and speech clinics are available on a private basis in some localities to those who can pay the fees. Some of the larger cities also have public adult education classes in speech and hearing skills for the hard of hearing.

In addition to compensatory skills training, many adult hard of hearing require help in re-establishing themselves in the employment world. The U. S. Employment Service has a special division for handicapped persons where the hard of hearing can be given the understanding service they require. Social agencies, like the New York League for the Hard of Hearing have similar services for adults. State departments of education offering retraining to physically handicapped persons include the compensatory skills for hard of hearing clients. The aim of the total program for adults is to help each man or woman become personally, socially, and economically secure in the hearing world.

LIPREADING

Lipreading or speech reading (the two terms are synonymous) has been defined as the art and skill of understanding speech by watching the movements of a speaker's mouth. It is used in some degree as a supplement and complement to incomplete hearing of speech by most persons, even the normally hearing who find that they often hear better in the subway, for example, when they can see the speaker's lips. People who mutter through slit lips are hard for everyone to hear because the eye hasn't the ghost of a chance to help the ear. Television *is* easier to hear than radio for the same reason. In short, two senses are better than one. The profoundly hard of hearing find in lipreading their only means of understanding speech. The slightly hard of hearing and those who won't admit that hearing is diminishing usually attempt lipreading to compensate for the loss of hearing.

Youngsters who have congenital hearing impairments use lipreading as their first contact with speech. They use this skill and auditory comprehension to acquire new words and language power for communication.

Lipreading is not an infallible substitute for hearing. In fact, some skeptics say it is impossible, — just black magic or shrewd guessing. There are times when it's pretty hard to prove that lipreading has *any* value. People who talk without visible movement of the lips, like ventriloquists, for example, make a travesty of lipreading. Other complications shutter out understanding. For instance, one can only lipread what he knows; he can't understand the sentence "Sally lives in a thatched hut on the Congo" if he doesn't know what a "thatched hut" is.

The sounds of natural American speech move along at a rate of 1/13th of a second per speech sound with no opportunity for a second take. It is impossible to see every detail of speech, and a quick eye is required even for a general impression of what is being said. The lipreader must catch and remember the 'headlines' of thought as the words pass in rapid succession. There is no time to see every word, certainly no need to spell it out. There is no time for deliberation, no fixed pattern or symbol to look at a second time for a memory refresher.

It is unfortunately true that many sounds of speech look the same, P. B. M, sound very different, but if there are no sound clues, the meaning a lipreader gives to these three identically seen statements "Meet the baby", "Beat the baby" and "Pete, the baby" will depend upon what he has in mind. Lipreaders are also trapped by sounds which are downright invisible — only 60-70% of them are really visible. The phonemes "k" and "g" are two of the pig-in-a-poke sounds a lipreader buys sight unseen. Again, the lipreader must find the meaning of a sentence like, "Where is my gat?" from the situation because he will not see it in the speaker's lips.

In spite of all its limitations, however, lipreading is universally helpful to the hearing handicapped, and its systematic teaching is a legitimate part of the special education curriculum of all ages.

Methods used in lipreading like the methods employed in teaching reading have changed focus considerably in the past fifty years. Both types of teaching have worked up from the alphabet system through syllables and words to the 'whole thought' method. Knowledge of how the sounds of speech are formed, and rapid recognition of their visible forms are learned by association, repetition, and contrast; they become the basis for understanding of thought or lipreading. For example, a lipreader learns to recognize the characteristic lips shut and open movement make the phoneme "m". He learns this movement form so surely that he does not think "m" as the first sound in "mother" but accepts it and moves along in communicative response to the sentence "Mother wants you in the kitchen".

Success in learning lipreading is not predictable, and varies, of course, like all learning from zero to almost one hundred. Generally speaking, children learn more readily than grown-ups. Women acquire more skill more quickly than men, and the easy-going individual climbs higher on the success scale than the perfectionist.

The American Medical Association recommends that lipreading be offered to all school children whose irreversible hearing loss averages 20 db or more in the better ear. Rehabilitation agencies, which often take up where school leaves off, are empowered to offer lipreading lessons to persons whose bilateral loss exceeds 30 db. The wider use of hearing aids has not changed the need of lipreading, but has changed its focus. Lipreading is now more often needed as an adjunct to hearing, while in the past it was more often a complete skill. Wherever it is placed in the curriculum, and whatever it is called, lipreading remains a basic tool in the communicative process for all hard of hearing persons.

Auditory Comprehension

The literature describing the education of both the deaf and the hard of hearing contains many references to acoustic training, ear training, residual hearing training, auditory training, and auditory comprehension. These terms, at the time of their use, were meant to indicate a systematic plan for developing the art of listening to its highest functioning level. Assuming that sounds to a defective ear are faint, distorted, or both, the listener must learn to pay attention to the sound and to discriminate and associate those sounds, such as they are, with meaning. This is the aim of auditory comprehension. Auditory comprehension will not halt auditory dysfunction, or in any way improve the function of hearing. No amount of training will change the basic ability of the hearing mechanism. Although such an individual may learn to use his hearing more efficiently and more gracefully, his audiogram will remain the same. Like a bank account, it may seem more when interest is added, but the original deposit stays the same. In the last few years, auditory comprehension has been associated with hearing aids because the amplification the devices will, in most cases, make speech loud enough to be understood.

If amplification is not available, it is possible to increase loudness of sound for auditory comprehension by speaking loudly and directly into the pupils' ear. In some cases, where amplification of any kind increases the confusion of sound and further limits the listener's ability to glean meaning from the jumble of sounds, this is the preferred method. Power amplifiers or group hearing aids are preferred by some instructors for young children and 'difficult cases' because of their greater power and higher fidelity. Most teachers agree, however, that the use of a personal aid will benefit the majority of hard of hearing persons more because it is readily available for constant use.

Predicting how much any individual will gain from auditory comprehension training is as risky as weather forecasting. Pleasant surprises and galling disappointments are in store for the prophet. Some generalities akin to 'the month of July is likely to be hot' may be permitted. One with a class D conduction deafness (see audiogram 1) will probably be able to derive maximum benefit from a hearing aid after a few lessons in listening, whereas a second person in the same class having an audiogram like audiogram 2 will require ten times the training to achieve one half the total result.

The ski-slope (audiogram 3) will probably never be able to distinguish between high frequency sounds; "s", "f", and "th" have little or no sound for him, so he must learn to interpret a combination of auditory rhythmic clues and lipreading to 'hear' or attach meaning to those sounds.

Young seriously hard of hearing children usually have to begin their auditory comprehension on the primitive level of sound where they are taught awareness of sound itself before the discrimination and interpretative faculties can be developed. Auditory comprehension is of most importance to these children, for it can provide them with the auditory sensory experience necessary for perceptual functioning. The amount of language a child learns is often in direct proportion to the adequacy and amount of auditory comprehension the child is exposed to and can profit by at any early age.

New hearing aid users who have had normal hearing most of their lives present an entirely different problem in auditory comprehension. With a head start on their auditory comprehension, lessons can be designed to recall and put to immediate use something already learned. Such relearning might be compared to a typist who hasn't used her skill for ten years. When she starts again, she may type slowly in comparison to her previous speed and she may tire very quickly, but in a relatively short time her original skill returns. The new hearing aid wearer who has been away from easy hearing for a while will find that he will have to learn tolerance of the normally noisy hearing world. In short, he may have to make peace with himself, his hearing aid, and his environment before he can make use of the hearing his aid delivers to his ear. The teacher of auditory comprehension will try to teach him all the tricks of hearing aid use, such as the use of his aid on the telephone, adjustments to distance and noise, etc.

SPEECH FOR THE HARD OF HEARING

Speech for the hard of hearing divides itself into three categories based upon the age of the individual, the amount of language and speech developed before the hearing loss was acquired, and the quantity and quality aspects of the hearing loss. For very young congenitally hard of hearing youngsters, speech is an element and developmental process which begins when the child associates a word (example) which he hears and lipreads with the actual object. The child experiments imitatively with the lip movement and the sound of the word until he actually says the word "ball." Many repetitions, reinforced by association are required before memory takes over and the child says "ball" when he sees one, the word ball is considered part of the child's vocabulary when he uses the word meaningfully and freely to get a ball when he wants one. Without specific, systematic instruction many young hard of hearing children cannot make the Herculean effort required to acquire speech and language. The importance of early amplification and instruction cannot be emphasized too much, as it is in the first five years of life that most children learn the basic language so necessary to success in school and life.

Speech therapy, improvement or correction, are terms frequently used to define the specific speech instruction which is or should be provided for the hard of hearing who have developed basic speech and language patterns but have not yet perfected the best speech they are capable of producing. A three year old who asks for "tooting dum" is cute, but an eighth grader who makes the same sound substitution will not be so kindly accepted.

Hearing deficiency cuts seriously into self-help in speech; hard of hearing childrens' ears do not monitor their own speech as normally hearing ears do. In the same way, the defect makes learning better speech in groups, vicariously, much less possible. Distance, which reduces ability to hear so sharply, makes further cuts in opportunities for hearing in group situations. Consequently speech help is often necessary over a long period of time for those severely handicapped at an early age.

It is hoped that speech and hearing teachers will be available in all school systems within a few years. Besides offering concrete help with the child's personal speech and hearing difficulties, such a teacher will be of great value in helping the child melt into the hearing group where he spends most of his school day. Ideally, such a teacher will have a flexible schedule that will permit her to give each child the amount and kind of help his hearing loss dictates.

Some communities employ a special teacher for a class of hard of hearing children. This teacher is responsible for the children's basic education as well as the special skills training. Somewhat resembling the one room school this type of set-up has essentially the same advantages and disadvantages of that form of administration. In some areas, additional state subsidy is available for classes of this kind, but not for special speech and hearing teachers. Hence boards of education may elect to start a class of this kind because adequate financing is possible.

Speech retention is descriptive of the aim of speech teaching for the adult whose language and speech is well developed before deafness occurs. It is particularly important in cases of sudden and complete deafness. Lacking the natural check of hearing, most persons so handicapped shout or use no voice at all. All consonants tend to become vocalized, thus "pack" becomes "back" with consequent change in meaning.

Other changes may take place as the fear of being conspicuous develops. A skillful teacher can restore confidence in ability to speak at the same time that she teaches ways of maintaining acceptable speech. The student will of necessity learn to use his knowledge of the mechanics of speech, not hearing, to monitor his speech.

HEARING AIDS

Reduced to their simplest terms, hearing aids are natural, mechanical, or electronic devices which make sounds louder. Hearing aids do not 'correct' hearing as glasses are said to correct vision, nor do they 'restore' hearing to normal. A hearing aid will not alter the basic pattern of functional hearing; it cannot help anyone understand sounds the ear itself cannot hear. If an increase in loudness makes speech more understandable, a hearing aid may improve an individual's total communicative reception up to 40%. In some cases this improvement will bring the individual into the 'dull normal' hearing class and he will seem comfortable in most situations, especially if he has good supplementary lipreading skill. Most hearing aid novices and the general public, expecting nothing short of 100%, are doomed to disappointment by the less than half-measure of help hearing aids provide.

Too often a relative, employer, or teacher will judge a hearing aid wearer unfairly without knowing the facts. They say, "Jack's hearing aid is no good" or "He's a fool not to wear an aid. Why, I know someone who isn't half as deaf as Jack and he hears perfectly with his aid." Each of these three statements may be perfectly true, yet it may fail to explain why the hearing aid doesn't help Jack. Many reasons can be found for Jack's difficulty. The quality as well as the quantity of hearing loss, the cause of ear trouble, or the aid itself may be responsible for the poor results. These facts and others, should be discussed with an expert before judgment is pronounced on Jack.

Today's electronic hearing aid is a complete radio broadcasting and receiving set powered by a 1.25 to a 3.75 volt battery. Technological advances in the radio and television industry, printed circuits and transistors particularly, have made it possible to compress the microphone, amplify circuit, and power supply of a hearing aid into a miniature cigarette lighter. These small aids are capable of simplifying the speech sounds up to 70 db. Although built to compensate for a fairly standard hearing loss, some modification of circuits can be made to provide variation in pitch and loudness values to fit a variety of individual needs. Bone and air conduction receivers are among the adaptations that can be made.

The process of fitting an aid is often a tricky one. Instruments can measure what a hearing aid can do, but there are no machines to measure the all important factor of what an individual can do with a given aid. This subjective, psycho-physical response defies measure and complicates hearing aid evaluation. Many hospital and university hearing and speech centers and recognized social agencies offer help in the selection of a hearing aid. If this service is unavailable, a hard of hearing person can try different makes of hearing aids himself. He will do well to buy the aid that provides the most intelligible speech, a pleasant tone, and good service.

The fitting of hearing aids for very young children presents a problem that is about one-fourth child and three-fourths parent. Since these youngsters often do not have enough speech and auditory comprehension to help in judging their responses, their aids should be fitted by experts. Hearing aids are now safely being fitted to toddlers and runabouts in the hope that early amplification will spark the speech and language function to more normal development.

About 75%of the hearing handicapped can derive some help from hearing aids. In general, aids are more bother than help to persons with a mild loss in the 25-30 db range. At the other extreme are those whose losses exceed 85-90 db, who may be happier but not actually hearing much better with an aid; the rhythms of speech give them a feeling of living in a world of sound, but little else.

Hearing aids are recommended for persons with incurable losses of 30 db or more in the better ear. Conduction deafened individuals will be the most satisfied users of the device. Because of the basic pathology of the perceptive mechanism, the nerve deafened (audiogram 3) do not often find hearing aids useful. In between these two extremes will be found a large number of the hard of hearing whose hearing aids, when supplemented by lipreading, are highly useful adjuncts to understanding speech. Many people, men and children particularly, find hearing aids hard to accept. Until they have learned to accept their disability, they cannot accept the aid that seems to advertise their infirmity and to set them apart from others.

Private and state resources make hearing aids available to some who cannot afford either the purchase price or the upkeep of an instrument, yet there are many who are deprived of their benefits by lack of money.

Guidance and Employment

Like his normally hearing friends and classmates, every hard of hearing person hopes to find personal satisfaction, economic independence, and social status in work. Deafness is more likely to limit the opportunity rather than the ability to do most kinds of work. The physical fact of deafness carries no compensating mechanical skill or aptitude; there are no jobs in which the hard of hearing excel, and few that are closed entirely to all hard of hearing.

In riffling through one hundred records of persons who came to the League's hearing aid evaluation service, I found thirty-four specific occupations listed. Included were porters, ministers, x-ray technicians, display artists, waiters, law clerks, taxi drivers, farmers, typwriter repairmen, stock brokers, garment cutters, file clerks, dentists, motion picture projectionists, mechanical engineers and salesmen. This sample is representative of at least 60% of the total hard of hearing population or those who can be helped by wearing hearing aids. It indicates the wide range of employment possibilities for the hard of hearing.

The counsellor's knowledge of occupation and guidance techniques should be supplemented by an equally sound knowledge and understanding of all ear conditions, hearing itself, and the hearing hazards in all types of occupations. The conservation of the client's hearing is as much a part of the counsellor's responsibility as finding the right vocation. For example, a counsellor who cannot artfully direct a client, deafened by acoustic trauma, away from riveting might truthfully be directing him to a suitable vocation and total deafness as well.

Counsellors of the hard of hearing know that some hearing loss is to be expected as a part of the aging process for everyone, including their clients. This "natural" loss, superimposed upon the initial impairment, frames a realistic vocational plan for hard of hearing persons.

Guidance counsellors find their work with the hard of hearing divided into two categories; the youngster who wants to know what he can do successfully in spite of a hearing loss, and the older worker who must find a different job, one in which his hearing loss is not so great a handicap. Counselling both groups begins with a realistic and complete evaluation of the individual's personal, mental, physical and emotional assets and liabilities, his aptitudes and attitudes, and community opportunities for employment.

Two well matched cases are presented to indicate the counsellor's use of all knowledges, especially that of hearing, in vocational guidance of two hard of hearing persons:

DATA	THE YOUNGER CLIENT	THE OLDER CLIENT
PERSONAL	17 years old, high school senior who knows successful hard of hearing nurse and wants to follow in her footsteps.	32 year old widow with one child to support, finds her present nursing job as night supervisor of a surgical floor increasingly difficult, as her hearing gets worse. Likes nursing and would not want to change except for fear of failing to meet her responsibilities because of her hearing loss.
INTELLIGENCE	127 I.Q.	131 I.Q.
EDUCATION	To graduate from high school next month. Honor student, is candidate for biology and Latin honor awards. Has taken nursing aptitude test and scored high.	High school graduate, B.S. degree from a college combining nursing and academic training in a 5 year course. R.N. and Ph. N. licenses held.
PERSONALITY	Likes and is liked by people, has variety of all interests, cultural and social, especially likes dancing.	Likes and is liked by people. Likes creative hand work, new patterns for argyle socks, etc.
PHYSICAL	Health excellent, vigorous and strong - no major illnesses.	Health excellent, slight limp resulting from leg broken in ski accident.
HEARING	Congenital loss noticed at 10 months of age. Diagnosed as hereditary nerve deafness. Prognosis: stationary. Degree of loss: class E. No recruitment problem.	Hearing loss first noticed at 24, following daughter's birth. Diagnosed otosclerosis. Prognosis: probably progressive. Degree of loss: class E.
AUDITORY COMPREHENSION	Lipreading excellent. Has had training since she was 2. Speech and voice	Lipreading fair, has not had time to study the subject. Speech and voice

	becomes too loud under stress now and then. Has worn aid for 11 years; understands most speech within distance limitation: not comfortable or confident in situations precluding visual clues.	excellent except for no specific training. Has worn aid for 6 years - can understand speech and discriminate all sounds within limited distance with comfort and confidence in her hearing.
ATTITUDE TOWARD HANDICAP	Realistic except in relation to vocational choice. Here she relies upon cliches that she can do what others have done.	Realistic and accepting of present loss and very possibly greater loss in future.
GUIDANCE PLAN	Arrange opportunity for observation of nurse's duties requiring more perfect hearing so client can see for herself that vocational goal is not realistic.	Make use of past training if possible. Explore other areas of nursing less demanding of hearing in hope of position in nursing field that will be posible in event hearing grows worse.
GUIDANCE PLAN	17 years old. Explore other occupations using her favorite subject, biology, and her strong desire to work in the medical field as base.	32 year old widow. Conference with nursing personnel service in hospital resulted in transfer of client to supervisor of central surgical supply room without loss of pay.
FUTURE	College entrance facilitated. Plan for periodic check to keep communication skills up to maximum functioning level.	Suggest plan for lipreading study to supplement hearing as way of easing present strain and as insurance for future.

In these two cases the counsellor attempted to help the individual find the kind of work she could and wanted to do. Thus her abilities were considered first, and then the job was analyzed in terms of her disability, the hearing loss. The immediate and future planning is consistent with the abilities and disability of both women. There is every reason to believe that they will be able to function satisfactorily in competition with their normally hearing co-workers in spite of their hearing impairment.

Many of the employment failures among the hard of hearing can be avoided when the counsellor is able to help the client accept the fact that he, himself, must be prepared to do better work on the job than his normally hearing co-workers. A typist, for example, must have the highest degree of skill to offer her employer to compensate him for her inability to pinch hit on the switchboard.

It is not nearly so difficult to locate suitable employment possibilities as it is to place a hard of hearing person on the job. Unless the prospective employer is prepared by the counsellor to accept the client's handicap, a hard of hearing job hunter may lose his chance to prove his worth before the interview begins. He may knock on the door and fail to hear, "Come in."

An integrated conservation of hearing program, beginning with identification of hearing impairment and including medical, educational and rehabilitative measures, job counselling and employment acceptance would require a small capital outlay. It would pay big dividends in money and human welfare. Perhaps some day society will realize that it costs far less to keep a worker fit for, and on, a job than it does to support him when he is out of one.

SUMMARY

This chapter is concerned with the factors involved in understanding the sixteen million people in the United States who are hard of hearing. Programs of deafness prevention and conservation of hearing, compensatory and basic educational skills are briefly discussed in relation to the optimum development of the individual as a social being.

It is urged that public education accept its responsibility for providing hard of hearing children with both basic and compensatory educational skills in the regular school. Additional tax money will be required for this program in some areas and some change in the distribution of funds in others. Teacher training programs are an important part of this planning. The acceptance and integration of individuals of all ages, who are hard of hearing, in a normally hearing society is desirable and possible.

PLAY THERAPY FOR THE HARD OF HEARING*

NED RUSSELL

For a number of years psychologists have emphasized that the abnormal and maladjusted behavior of humans represents disturbances of an emotional character. Instead of emphasizing the intellectual aspect of mental disease, psychologists have concentrated their studies upon emotional conflicts. It was quite common, much earlier in this century, to refer to mental disease as "'loss of mind." Our more recent investigations have led us to the discovery that mental disease ordinarily represents a severe conflict or disturbance of an emotional nature.

Clinical workers in the field of psychology have developed a number of therapeutic techniques with children which aim to aid these children in overcoming the frustrations, tensions, and fears which may have developed in their lives. Some of these techniques involve music therapy, others involve the use of art as therapy, still others employ variations of free play as a therapeutic technique.

It is evident that clinical workers in recent years have shown a greater recognition of the role of emotional disturbances in exceptional children. It is also true that various therapeutic techniques have been attempted with these exceptional children who are greatly disturbed.

At the College of the Pacific, especially in the summer session program, special effort has been made to employ several therapeutic techniques with children enrolled in the speech correction clinic. A rather extensive program of music therapy has been utilized, and for the last two summers a daily program involving free art expression has been employed. For a number of years many disturbed children in the speech clinic program have been referred also to the play therapy clinic at the college. These have included some post-polio cases, stutterers, and the hard of hearing.

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PLAY THERAPY PROGRAM

The play therapy program at the college has operated largely on the basis of the client-centered techniques of Carl R. Rogers and Virginia M. Axline. A brief illustration of a composite case in play therapy may show how this program is operated.

Ordinarily the child spends a considerable portion of the first period exploring the play room. There are many things to fascinate him. Also, at the beginning stage, it is quite common for the child to show the need for a positive relationship to the therapist. This is often demonstrated by over-polite actions on the part of the child. This behavior has been shown many times by patients who have the reputation of being very aggressive and hard to get along with.

Next, the client usually shows some negative feelings. He may be unable to share these fully with the counselor or therapist and may therefore keep pretty much to himself. Some clients actually retire to a corner of the room and keep their backs to the therapist. Undoubtedly, one part of this behavior is a testing of the freedom of the situation. The client needs to assure himself that the hour of play is truly his own and that in it he may do as he pleases.

This negative phase very often will develop into open aggressiveness. Violent actions which include the counselor may occur. The client not only takes out his aggression on objects in the play room or on imaginative characters but he is quite apt to make unusual demands on the counselor. He may threaten the counselor in various ways. He may even desire to tie him up or hit him. Ultimately the client discovers that the counselor has the deep understanding of his need to express these aggressions. The client will then find that he can share all phases of these reactions with his counselor. This is described as a period of catharsis.

Lastly, there will be an exploration of new personal relationships with the counselor. This corresponds to the development in adults of insight and of the trial of new behavior patterns. In children, this is evidenced more in actions than in words. There may be, however, definite verbal signs, such as the growth of the "we" concept. The client will have found a more harmonious working relationship with his counselor and he will often report, "We surely had a good time, today, didn't we?"

HARD OF HEARING IN PLAY ROOM

Many hard of hearing children, referred by the Speech Department, have shown rather severe problem behavior just prior to referral. These cases often were discipline problems in the dormitory or in the classroom. Several showed marked aggressiveness toward other children.

Some of these cases were able to work out much of this aggressive behavior in the play room. These clients ordinarily showed much aggressiveness toward the dolls and struck or pounded other objects in the play room. When an outlet was provided in the play room the following period in the dormitory usually showed a lessening of tensions. A number of these cases, however, continued to build up tension between the play therapy sessions. The clinic usually provides two play therapy sessions per client each week. It should be mentioned that a number of the hard of hearing cases failed to show a permanent change of attitudes during the brief period of the summer session.

The number of hard of hearing cases has been too few to permit many generalizations regarding the value of the play therapy program. As our experiences continue, it is hoped that eventually enough data will be gained so that some useful deductions may be made concerning this therapeutic technique.

Speech Cases Benefited

Client-centered therapy has been very successful in a number of cases referred by the speech clinic. Perhaps the most unusual case is that of a girl of sixteen years who had been stuttering severely for a long period of time; she had been observed and then aided by a speech teacher in the schools. She also had considerable training at the College of the Pacific summer clinic prior to her referral to client-centered therapy. Perhaps some progress had been made in the re-training program, but she continued to maintain most of her faulty speech habits.

In interview therapy this girl made rapid strides. She was able to uncover within a period of a few weeks many sources of her fears and anxieties. Insight at this emotional level enabled her to find ways of improving her attitudes on basic issues in her life. It was noted that her stuttering decreased during the counseling sessions. Improvement in her speech outside of counseling followed the growth of insight. This case was followed up after an interval of four months. The girl's speech was much improved. Her social behavior also had changed for the better.

Counseling in this case was given by a person who formerly had been a stutterer and who consequently, was able to develop a deep understanding of the girl's disability. His ability to grasp the personal problems with which she struggled seemed to be very important to her success in finding a new orientation for herself.

Similar success was noted in other speech cases who were helped by play therapy or client-centered interview therapy in the psychology clinic program. The most successful counselors have been those with prior training in speech correction. It is a distinct clinical impression that these persons have been able to develop readily a full understanding of the clients' inner feelings which understanding has seemed essential to the success of this therapy.

In the operation of the two clinics, the speech correction clinic and the play therapy clinic, other problems have arisen. There have been times when a client, referred for play therapy, resented the fact that he or she was pulled away from a preferred group activity. Unless the play room has a vital interest for the client, play therapy can not very well get under way. There have also been occasions when a child developed a misunderstanding regarding the nature of the play therapy programs and, consequently, results were ineffectual so far as therapy was concerned.

It seems quite evident that, with the hard of hearing, communication problems produce a notable barrier in the play therapy program insofar as these children are concerned. It is likely, too, that the summer session has not proved a sufficiently long period in which to deal successfully with many deep-seated problems of hard of hearing children. It is hoped that in the future a longer period of time may be provided for these children.

RECOMMENDED STANDARDS FOR AUDIOLOGY CENTERS*

These standards were developed with the intent that they might be used as a guide for those hospitals which are interested in developing Audiology Centers. Although the recommended standards relate to the care of children and youth who have or are suspected of having hearing impairment, it is not intended that the Audiology Centers limit themselves to the care of children and youth only.

In the development of the standards by the Advisory Committee, the Committee was of the firm opinion that, because of the many professional disciplines necessary for the total management of the child, the "team method" was necessary; in other words, all of the professional personnel concerned must be brought together and work together on a unified basis.

The consultation staff of the Bureau for Handicapped Children is available to assist any hospital in any way possible in developing an Audiology Center.

FUNCTIONS OF AN AUDIOLOGY CENTER

A. To aid in the education of the community regarding the prevention of hearing loss by understanding the causes of hearing problems and the need for early detection, treatment, training and rehabilitation.

B. To provide services in which children and youth who have or are suspected of having defective hearing can be examined, diagnosed and treated.

C. To provide services for children and youth whose hearing loss necessitates special instruction, and/or the use of a prosthetic device.

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Recommended Personnel for an Audiology Center

A. Director or Coordinator

The director or coordinator of an auditory center should preferably be full time. Such a person would be the administrator of the service and would be responsible for the maintenance of a high quality of service and for the coordination of the work of each member of the staff of the Center. The director or coordinator should be a physician, preferably an otolaryngologist, or an audiologist.

B. Medical Staff

1. Otologist

It is recommended that an Audiology Center have on its staff one or more qualified otologists for the complete otological evaluation of patients. The total number of otologists provided will depend upon the case load served by the Center.

2. Pediatrician

It is recommended that an Audiology Center have on its staff one or more qualified pediatricians for the complete pediatric evaluation of children and youth. The total number of pediatricians provided will depend upon the case load of children and youth served by the Center.

3. Consultation Services

It is recommended that the Audiology Center provide the services of medical consultants for those patients who may from time to time require such services. Such consultation services should include qualified medical specialists in the fields of neurology, orthodontia, orthopedic surgery, plastic surgery, psychiatry, etc. Such consultants should be easily and readily available to the staff of the Audiology Center as indicated to meet the needs of the individual patient.

C. Non Medical Professional Staff

It is recommended that the non-medical professional staff of the Audiology Center consist of the following personnel:

1. Audiologists

Each Audiology Center should have a minimum of two full-time qualified audiologists.

2. Audiometer Technicians

Each Audiology Center should have a minimum of two audiomatic technicians.

3. Speech Therapists

Each Audiology Center should have a minimum of two qualified speech therapists.

4. Hearing Therapists

Each Audiology Center should have a minimum of two qualified hearing therapists, one of whom should have had experience in the education of the deaf.

5. Psychologist

Each Audiology Center should have the services of a qualified psychologist, preferably some one trained in the field of the education of the handicapped child.

6. Social Worker

Each Audiology Center should have the services of at least one full-time qualified social worker.

7. Nurse

Each Audiology Center should have the services of a registered professional nurse.

8. Electronics Technician (Audio)

Each Audiology Center should have available the services of an electronics technician (audio).

9. X-ray Facilities

The Audiology Center should have available to it the facilities and services of an X-ray Department, equipped and staffed for diagnosis and therapy.

D. Other Personnel

Each Audiology Center should have at least one full-time secretary, and a typist-receptionist.

Recommended Physical Setup of an Audiology Center

The center should be located in a quiet section of the hospital, away from any heavy machinery, main plumbings, etc.

A. Provision of an Integrated Unit

It is recommended that the facilities and services for the diagnosis, out-patient treatment, training, and rehabilitation of children and youth who have, or are suspected of having, hearing impairment, be provided in an integrated unit within hospital which can furnish the consultative services recommended herein.

B. Space Recommended

In order to provide all of the necessary facilities, it is recommended that an adequate amount of space be provided within the Audiology Center.

C. Treatment for Sound Absorption

It is recommended that the entire Audiology Center be treated for sound absorption and exclusion.

D. Rooms Necessary

1. Reception area and waiting space (30′ x 20′)
2. Office for director or coordinator (10′ x 15′)
3. Office for social worker (10′ x 10′)
4. Office for Psychologist (10′ x 10′)
5. Playroom — adequately equipped (20′ x 20′)

6. Audiometric Testing Rooms (two) — Thoroughly treated for sound absorption and transmission. These rooms should have a noise level of not more than 30 decibels overall. The room should have no windows and special doors. Air conditioning (acoustically treated) is desirable. (5′ x 10′)
7. Auditory Training Rooms (two) — one room should be small (for individual training); the other room large (for group training). (10′ x 20′ and 10′ x 10′).
8. Speech Therapy Rooms (two) — one room should be small (for individual training); the other room large (for group training). Both rooms should have running water. (10′ x 20′ anl 10′ x 10′).
9. Office for General Personnel — This room should be large for record keeping, staff conferences, and record filing. (10′ x 20′).
10. Medical Examination Rooms — The number of rooms necessary will depend on the case load of patients served by the center, and the number of otologists and pediatricians assigned to the Center, in accord with the above recommended physician-patient ratio. Each room should have running water and suction.
11. The Sound Proofed Section
    a. Testing Suites — There should be two 2-room testing suites. Each suite should consist of a test room for the patient, and a control room for the technician. (30′ x 15′)
    b. Audiometric Testing Rooms — Two.
    c. Storage space — for hearing aids.
12. Ear Mold Laboratory — This room should have running water. (5′ x 5′).
13. Storage Space — At least 1 large closet.
14. Electronics Workshop — This may be a part of the general instrument repair shop of the hospital.

Recommended Minimum Equipment for an Audiology Center

A. For Basic Audiometric Testing Rooms

1. Basic two-channel audiometer in each room

B. For Auditory Training Rooms

1. For each room:—
   One auditory training unit group equipment for large room; individual equipment for small room
   One mirror
2. One motion picture projector

C. For Speech Therapy Rooms

1. For each room:
   One full length mirror
   (See V1-F)
   One relaxation table
   One orthopedic chair

2. One Tape recorder.

D. For the Sound Proofed Section

1. For Each Two-room Testing Suite:
   a. One hearing evaluation assembly:
      1) Two channel units — one for speech, one for noise.
      2) Outputs through any combination of head phones and/or through speaker, for one or both channels.
      3) There should be a maximum output of 100 decibels or more through phones, and of 85 decibels for speaker.
2. For Each Advanced Audiometric Testing Room
   Two channel pure tone audiometer (advanced clinical audiometer)

E. For Ear Mold Laboratory
Cabinets
Sink with running water

F. General

Table model hearing aids should be provided in each room of the Center except for the audiometric testing rooms and auditory training rooms.

General Policies

The following recommendations are made as desirable general policies:

A. Each patient seen in the center should have audiometric testing with an individual pure-tone audiometer.

B. If any patient shows, on the basis of the audiometric test, a loss of 20 decibels or more in any two frequencies, in either ear, the patient would then:

1. Receive a complete evaluation by the Center otologist.
2. Receive a complete evaluation by the Center pediatrician unless a recent pediatric evaluation report is sent to the Center.
3. Receive a complete pure-tone and speech audiometric evaluation (threshold and supra threshold) by one of the Center's audiologists.
4. Receive a speech evaluation.
5. Receive a psychological evaluation, if indicated.
6. If indicated, the patient would be seen by any of the medical specialists (neurologist, orthodontist, orthopedic surgeon, plastic surgeon, psychiatrist, etc.).
7. The findings of the diagnostic workup and evaluation would be presented at the staff conference of the entire personnel, at which time a decision on the plan for treatment would be made for each patient, including medical treatment, surgical treatment, and/or auditory rehabilitation.
8. The patient would be seen by the social worker after the plan had been made for the patient.

C. Treatment and Rehabilitation Services provided might consist of the following:

1. Medical
2. Non-medical
   a. Speech reading
   b. Speech therapy
   c. Auditory training
   d. Psychological guidance
   e. Selection, fitting and instruction in use of hearing aids.
   f. Parent guidance
   g. Social casework
   h. Educational referral

D. There should be close liaison with, and referral to, the appropriate vocational guidance agency for those youths 14 years and over who require it.

E. Patient-Personnel Ratios

The case load in the Center should be limited to the number which the personnel can properly handle. The following patient-personnel ratios are recommended:—

1. One otologist should see no more than 12 patients per 3 hour session.
2. One pediatrician should see no more than 12 patients per 3 hour session.
3. One audiologist should see an average of 4-6 patients per day.
4. One audiometric technician should see an average of 20 patients per day.
5. One speech therapist should see no more than 25 patients per day (in individual and group therapy).
6. One hearing therapist should see no more than 25 patients per day (in individual and group therapy).

F. Staff conferences of all the professional personnel of the Center should be held periodically, preferably on a weekly basis. These conferences should not only include a review of individual patients, but also a review of problems in the operation of the services of the Center and recent advances in the field.

G. Complete records of patients should be maintained by the Center. The Center should provide copies of the records:

1. Routinely to the school which the child is attending.
2. Routinely to any referring physician.

H. Patients should be seen in the Center on an appointment basis only, except in the case of an emergency. The Center should provide a method of followup for those patients who do not keep their appointment.

Qualifications of Personnel

1. Director or Coordinator: Must have Advanced Certificate in Hearing issued by the A.S.H.A. — or equivalent.

2. Medical Specialists

   A physician who is a diplomate of the respective specialty board or who has the training and experience necessary for admission to the examination of the respective specialty board.

3. Audiologist

   A person who meets the requirements for the Basic Certificate in hearing which is issued by the American Speech and Hearing Association.

4. Audiometer Technician

   See 3 above.

5. Hearing Therapist

   See 3 above, plus the certification requirements set up by the Conference of Executives of the American Schools for the Deaf.

6. Speech Therapist

   A person who meets the requirements for the Basic Certificate in Speech which is issued by the American Speech and Hearing Association.

7. Psychologist

   The hospital should have a psychology department which meets professional standards. The person assigned to the Audiology Center should, in addition to his training in psychology, be well-grounded in the problems arising from communicative disorders.

8. Social Service

   a. The hospital should have a social service department which meets professional standards*.

   b. Qualifications

      1) Case Worker

         Completion of a full graduate curriculum in social case work in an accredited school of social work; in addition, must be working under supervision of a qualified social work supervisor or have worked two years in a social service department of acceptable standards in a medical setting under the supervision of a qualified supervisor.

      2) Supervisor

         Same educational requirements as above and a minimum of 2 years' full-time paid supervised casework experience in a social service department of acceptable standards in a medical setting.

         When responsibility for supervision of social casework is carried by a director or a lone worker, the qualifications should be identical to those of a supervisor.

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*A full statement of standards may be found in a "Statement of Standards to be met by Social Service Departments as set up by the American Association of Medical Social Workers" (1949 revised edition). See also statement of "Personnel Practice" pamphlets prepared by the American Association of Medical Social Workers.

c. Records

Records of social casework services to individual patients should be kept according to professional standards**. Content of records should include the analysis of the social problems and statement of the casework services provided. A summary report should be included in the patient's unit record.

d. Statistics

Statistics should be kept of individual patients to whom casework services have been given.

e. Coverage

Because of the various and complex problems usually met by children who have handicapping conditions, it is important that social casework service be readily available to those children and their families who need and desire such service.

**As set up by the American Association of Medical Social Workers.

HEARING AIDS*

EDITH L. R. CORLISS

Loss of hearing creates a serious problem. For most of us, the spoken word is our most important channel of communication. Even slight losses can interfere with participation in public affairs, and it does not take a very high degree of loss to hamper a person in conversation within a group.

Most individuals who have difficulty in hearing speech in a group conversation will find that wearing a hearing aid makes it easier for them to carry on their daily affairs. In addition, many people who have difficulty only with faint speech may be considered as "marginal" hearing aid users. These are the individuals whose hearing loss hinders them in public places — at lectures, meetings, and the theater. A hearing aid would be of decided assistance even to them. The instrument need not be very powerful. On the other hand, because persons with a slight loss can make direct comparisons between their unaided hearing and that with an instrument, they tend to be quite critical of the acoustic qualities of the hearing aid.

A person in need of a hearing aid has a special problem, for he himself must decide which instrument gives him the greatest benefit. Hearing aids cannot at present be fitted to individual hearing losses with the same exactitude as eyeglasses can be fitted to the refractive imperfections of the eye. A loss in hearing can occur either because the auditory nerve has become insensitive or because the sound vibrations are conducted inefficiently from the outer to the inner ear. Each of these conditions produces a hearing loss that behaves in a distinctive manner. Loss of hearing is often due to a combination of these causes in various proportions; it is not easy to measure the proportions. Therefore, the effectiveness of a hearing aid with known physical characteristics can be predicted only in a general way. The user must therefore pay close attention to the selection of his own hearing aid if he wishes to be well fitted.

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*Used by special permission of United States Department of Commerce, National Bureau of Standards, and of the author. Reprint National Bureau of Standards Circular 534, issued March 2, 1953.

Sections 3, 4, 5, and 6 describe the important properties of hearing aids, some of the criteria for judging them, and recommendations for their special care. To judge a hearing aid and to understand its limitations, it is helpful to consider the properties of sound and hearing that influence the performance of hearing aids. Section 2 contains a brief sketch of this background.

Some Properties of Sound and Hearing

The origin of the sensation of hearing is always some kind of energy. The most usual path through which hearing is stimulated starts with periodic pulsations of pressure in the air around us. These pulsations of pressure enter the outer ear and travel down the ear canal. They induce a to-and-fro motion of the drum membrane. Attached to the inner side of the drum membrane is a little chain of bones, so anchored that they take the relatively free flexible movement of the eardrum and convert it to small but very stiff motions of the fluid that fills the inner ear, or cochlea. (Cochlea is the Latin word for "snail"; the fluid chamber in the inner ear is coiled into a tight little spiral.) Within the cochlea, the fibers of the auditory nerve end in contacts with numerous tiny structures called hair cells. The periodic motions of the fluid surrounding the hair cells give rise to electrical signals in the auditory nerve. The signal ultimately reaching the brain is electrical.

Experiments have been made in which electrical signals applied to electrodes on the head produce the sensation of hearing. The conditions under which this can be done are so special that the method is not at present adaptable for hearing aids. However, these experiments do show that the ear must translate sound pulses into electrical energy. On animals, it has been possible to measure the electrical signals sent out by the inner ear to the brain when ordinary air-borne sound is applied to the ear. In the type of hearing loss called a "nerve" loss, either the inner ear mechanism no longer converts the motion of the fluid efficiently into electrical energy, or the auditory nerve simply does not carry the electrical signals to the brain. An interesting and mystifying quality of nerve loss is that it often acts as though a steep barrier had been placed in the path of hearing. Sounds that have enough energy to override the barrier may appear almost as loud to the person having a nerve loss as they do to a person with normal hearing. Doctors call this effect "recruitment".

If the drum membrane or the bones in the middle ear are defective, they are unable to move the fluid in the inner ear very efficiently. The resulting impairment in hearing is called "middle-ear", or "conductive", loss, because the bones in the ear do not conduct sound very well. A person having this type of loss can use two alternative types of hearing aids. He can use a hearing aid that will supply, by means of an earphone, sound pulses with increased power to his drum membrane, so that even though the middle-ear mechanism is defective, the fluid in the inner ear is set into sufficient motion. Another type of hearing aid by-passes the eardrum altogether. It moves the bones of the skull by means of a vibration device, called a "bone conductor". The motion of the skull induces motion in the fluid of the inner ear, and the sensation of hearing is produced. The bone conductor is employed where use of an earphone is precluded.

We are accustomed to hearing our own voices — in part, at least — through the bones of the head. The quality of the sound transmitted through the head is usually rather different from the sound transmitted through the air. As a result, phonograph recordings of our own voices sound strange to us, though each person can recognize his friends' voices from the recording. Because the sounds of their own voices reach them through the bones of the head rather than through the middle ear, persons with a "conductive" loss often have little difficulty in hearing themselves speak.

A tremendous range of energies will produce audible sound. The loudest sound to which the ear can be exposed without injury has about 1,000,000,000,000 times the energy of the faintest sound that can just be heard. Our experience tells us that the ear must use a scale different from that on which these numbers have been written down. The listener does not judge a very loud sound to be nearly a million million times as loud as the faintest sound he can hear.

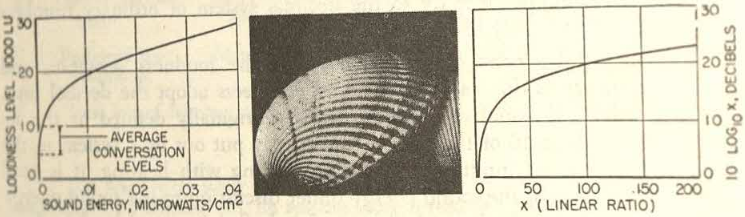

FIGURE 1. *As the curve at the left shows, if the energy of a sound is increased, the sensation of loudness perceived by a listener does not increase as rapidly as the increase in energy.*

The curve at the right shows that the logarithm of a number has much the same property. These curves show that the decibel scale, which is logarithmic, is directly related to loudness. The logarithmic scale is natural—as is shown by the profile of the sea shell (center). The animal must grow in such a way that it retains its shape, so that it continues to fit into the older part of its shell. Growth must therefore be distributed in proportion to the size of the creature already there, the shell thus forms a logarithmic curve.

The rate at which the sensation of loudness increases with sound energy is most nearly proportional, not to the total amount added, but to the size of the amount added in comparison to the sound energy already present before the addition was made. Everyone agrees that three violins playing together sound louder than one. Suppose you want to double that increase in loudness. It is necessary to persuade more than six violinists to play in unison — you need nine, each playing at the same intensity as the original player. Unless the solo violinist is playing very softly, the problem of producing a sound several times as loud soon exceeds the resources of a symphony orchestra.

The sense of hearing follows a scale that is widespread in nature. The same scale describes such diverse things as the rising of bread dough, the spread of epidemics, and the shape of sea shells.

To a close approximation, the increase in loudness is proportional to the ratio that the sound energy added bears to the total energy present. The scale that deals with increases proportional to the amount already present turns out to be a rather familiar one. Mathematicians call it a logarithmic scale. Loudness is therefore nearly proportional to the logarithm of the sound energy, and in estimating loudness the ear acts on a logarithmic scale. The relation of this scale to the ordinary number scale that we see on rulers and yardsticks — the "linear" scale — can be shown by a line drawn on a graph, as in figure 1. In the horizontal direction, equal distances along the scale are proportional to the ordinary number scale. In the vertical direction, equal distances along the scale are proportional to the common logarithmic scale, which expresses the numbers in terms of the number of times (whole or fractional) that the base number 10 must be multiplied by itself in order to give the ordinary number. This curve has much the same profile as the loudness-energy graph.

Logarithms can be calculated for bases other than 10, and their properties are independent of the base chosen. Squaring the ordinary number always doubles the logarithm, and cubing triples it. The logarithmic scale agreees with our observation about the violinists no matter which number we choose for a base. However, the number 10 is most often selected as a base because it applies directly to the decimal system of ordinary numbers that we use in our daily life.

The roughly logarithmic relation between the loudness sensation and the sound energy is the reason that sound engineers adopt the decibel unit. The bel, which is equal to 10 decibels, was originally defined as the logarithm to the base 10 of the ratio of the energy put out by a system to the energy applied to its input. However, in dealing with hearing, it is used to express the ratio of the sound energy under discussion to the sound energy at the threshold of audibility. A change of 1 decibel in sound level is about the minimum difference that can be perceived by a careful listener. This amounts to a change of about 26 percent in energy.

Describing hearing loss in decibels gives the ratio between the least sound that a person can hear and the normal threshold. Thus, the sound that can just be heard by a person with a 20 decibel hearing loss has 100 times the energy of the sound at the threshold for a person with normal hearing; correspondingly, a hearing loss of 40 decibels means that the threshold energy required is 10,000 times as great as that for normal hearing. A scale of degrees of hearing loss in decibels is given here:

In addition to loudness, we perceive two other properties in a sound; pitch and quality. Pitch is the word used to describe how low or how shrill a sound is. The sensation of sound is produced in our ears by periodic pulsations of pressure in the air around us. Although it is affected by loudness to some minor extent, the pitch of a sound depends primarily upon the rate at which the pulsations occur. This rate, the "frequency" of the sound, is usually expressed in cycles per second (i.e., the number of pulsations per second). Here, again, there is a logarithmic behavior in the ear; that is, doubling the frequency changes the pitch we perceive by what we recognize as one octave. To the ear there is as great an interval between 100 and 200 cycles per second as between 4,000 and 8,000 cycles per second — one octave in each case. The frequency range of pulsations giving rise to auditory sensation extends from 30 cycles per second to about 15,000 cycles per second.

SCALE OF DEGREES OF HEARING LOSS[a]

(Prepared by the Committee on Hearing of the National Research Council)

Class	Name	Loss for speech, in decibels[b]	Remarks
A	Normal	Not more than 15 in worse ear.	Both ears within normal limits. No difficulty with faint speech.
B	Near normal	More than 15 but not more than 30 in *either* ear.	Has difficulty only with faint speech.
C	Mild impairment.	More than 30 but not more than 45 in *better* ear.	Has difficulty with normal speech but not with loud speech.
D	Serious impairment	More than 45 but not more than 60 in *better* ear.	Has difficulty even with loud speech.
E	Severe impairment.	More than 60 but not more than 90 in *better* ear.	Can hear only amplified speech.
F	Profound impairment.	More than 90 in *better* ear.	Cannot understand even amplified speech.
G	Total loss of hearing in *both* ears.		Cannot hear any sound.

(a) This scale refers solely to hearing and does not take into consideration a man's competence with hearing aids, lip reading (speech reading), etc.

(b) The classes are defined by "decibels loss of hearing for speech." Until suitable technical facilities for direct measurement by speech audiometry are available, the loss of hearing for speech shall be calculated from pure-tone air-conduction measurements by averaging the hearing losses at 500, 1,000, and 2,000 cycles per second, or at 512, 1,024, and 2,048 cycles per second if the available audiometers are so calibrated. A person should be classified one class lower than indicated by the average value if, with an average loss of 10 decibels or more, his hearing loss for any one of the three frequencies is greater by 25 decibels (or more) than the least of his three losses.

From the quality of their sounds, we recognize at once the difference between a tin whistle and a flute. It turns out, upon investigation, that the sounds of a whistle, though of the same apparent pitch as those of a flute, have an admixture of pulsations of higher frequency than the base tone that determines the pitch. It is the composition of this mixture that we recognize as the quality of the sound.

There is a property related to sound that is often important in the consideration of hearing aids. That property is called "resonance." It describes the ease with which objects are set into sympathetic motion by the rhythmic pulsations of the sound. If the object has a natural mode of vibration (in which it would vibrate by itself if set off) that is of nearly the same frequency as the pulsations in the sound, it may vibrate strongly in sympathy with the sound. A system that is easily set into large motion at its natural frequency is described as "highly resonant." On the other hand, if energy is absorbed by friction, so that the sympathetic motions are limited in extent and duration, the system is said to be "damped."

General Properties of Hearing Aids

A hearing aid is simply a personal public-address system. It has a microphone to pick up sounds, a vacuum-tube amplifier to supply additional energy, and an earphone to transmit sound to the ear. Its performance is the result of a number of factors, some of them primarily related to the ear and the brain of the user.

A person with impaired hearing has the right to demand from a hearing aid something more than bare intelligibility. Actually, the brain is capable of piecing together an entire idea from mere fragments of speech sounds. As a result, an individual whose hearing loss is not severe can probably hear and understand speech with almost any hearing aid on the market. This does not mean that he will find it effortless or pleasant. However, at best he can describe the hearing aid characteristics he desires only in a general manner, as a pleasing or "natural" quality of the transmitted sound. Or he may note that it is easier to hear through some hearing aids than it is through others.

The following discussion describes some of the characteristics of a hearing aid that are directly related to the "something more" in the relationship between the user and his hearing aid. It is only the listener himself who can determine which factor has the most weight in his particular case.

The "gain" of a hearing aid is its fundamental property. Gain represents the relative increase in power that a hearing aid produces in the sound it transmits. If there is a hearing loss, only a small fraction of the sound signal striking the unaided ear reaches the sensory organ in the brain. The hearing aid builds up the sound energy reaching the inner ear until it yields auditory sensation. The gain is a numerical measure of the extent to which the sound energy is built up, or "amplified."

The gain of a hearing aid is not as a rule independent of the frequency (pitch) of the sound signal. However, if the instrument is to function as an aid, it must have a useful amount of gain for sound signals in the frequency range important for speech. Most speech sounds occupy the range between 150 and 6,500 cycles per second. Certain parts of this range are particularly important for the reproduction of speech sounds. The distribution of speech sounds, in frequency and sensation (loudness) level, is shown in figure 1. No sounds necessary for understanding speech occur in the frequency region below 200 cycles per second. As the figure shows, many consonant sounds will be suppressed by hearing aids that do not respond to sound in the upper part of the speech frequency range. The majority of the sounds that give speech its distinctive characteristics lie in the frequency range between 1,000 and 3,000 cycles per second. The older carbon hearing aids, dependent upon resonant microphone and receiver diaphragms to increase their efficiency, were tuned to favor this frequency range. With these instruments, speech can be understood, but many individual vowels and consonants will not be clearly identified.

The curves shown in figure 2 are acoustic gain curves measured on two representative makes of hearing aids. Some idea of how speech sounds through them can be obtained by considering what it would be like if the gain curves were traced over the syllable chart in figure 1. The hearing loss of the user is, however, an additional factor involved in the performance of a hearing aid in service.

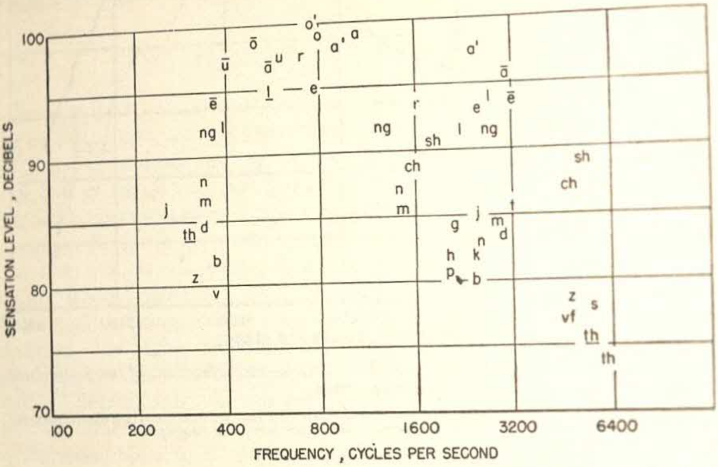

Figure 2. *This chart shows how the sounds that make up ordinary speech are distributed both in frequency and in relative loudness.*

For instance, we can see that the "d" sound has important frequencies around 350 cycles (vibrations) per second, and also around 3,000 cycles per second. Unless a hearing aid reproduces these frequencies, the "d" sound will not be clearly heard. The height of the "d" symbols in the chart shows that they are ordinarily spoken with medium loudness compared with other consonant sounds. (Chart from *Speech and Hearing*, by Harvey Fletcher of Bell Telephone Laboratories. D. Van Nostrand Co., Inc., New York, N. Y. Copyright 1929.)

In general, a young or middle-aged person with the type of hearing loss caused by failure of normal conduction of sound to the inner ear can expect good results from a hearing aid. However, if the inner ear itself has become insensitive (as it frequently does in elderly persons and sometimes in young persons), it may not be possible to obtain satisfactory results from a hearing aid.

A listener recognizes large variations of the hearing aid gain with frequency as a "distortion" in the transmitted sound. If the combination of his hearing loss and the gain of the hearing aid results in sudden large changes in compensation near a particular frequency or set of frequencies, sounds occurring near those frequencies will appear to be changed in their characteristics — e.g., the tapping of heels on a floor may sound metallic or thumping. Under such circumstances, some sounds may become difficult to recognize. This type of distortion is commonly called frequency distortion, because it results from inadequate frequency range or from too-sharp variations of gain with frequency.

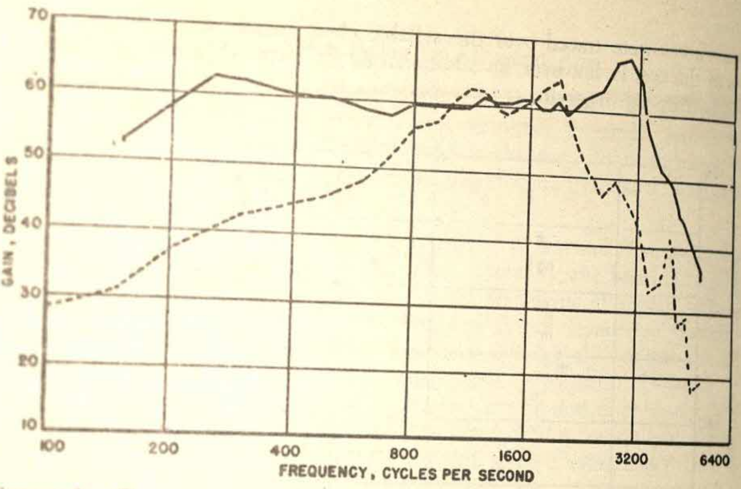

FIGURE 3. *These curves show the acoustic gain, or amplification, of two individual hearing aids.*

The instruments were of representative makes. Amplification of the two instruments is about the same in the middle frequency range, but differs considerably at higher and lower frequencies.

Another type of distortion may have serious effects upon the sound transmitted by the hearing aid: when the incident sound level is too high for the power handling capacity of the hearing aid, the excess sound energy is converted by the overloaded instrument into sounds of extraneous frequencies. Overload distortion appears to a listener as a noisy blurring of loud speech sounds.

Both frequencies and overload distortion in a hearing aid result from the compromises made in order to satisfy the demands for compactness and economy. Some hearing aids are built with microphones and earphones tuned to resonate in the middle of the speech frequency range. This is done to gain battery economy at the expense of uniform amplification, since uniform amplification over a wide frequency range is attained by heavily damping the natural resonances of the microphone and receiver, thus reducing their efficiency. Speech transmitted over a resonant system may sound tinny, but it will probably be intelligible.

In the quest for reduction in size, the "B" battery voltage has been continually decreased. When vacuum tubes are operated at lower voltages they cannot handle as large a signal without overloading. If a hearing aid is designed to operate on two or more "B" battery voltages, the battery having the higher voltage is usually preferable if overload distortion is noticed. Earphones have generally less power-handling capacity when their size is small. Overloading due to small size is most likely to occur at the lower frequencies, introducing overtones in the output sound that blur the sounds of higher frequencies that are important for the recognition of words.

An ear mold that fits properly is necessary for best performance from a hearing aid. The ear mold provides a speaking tube leading to the eardrum of the user from the earphone, which is worn at the entrance to the ear. If it is too loose, sound energy is lost through leakage. The sound energy escaping may be sufficient to reach the microphone of the hearing aid. When this happens, the hearing aid will "squeal" on loud sounds, and it may even squeal continuously.

How to Judge a Hearing Aid

In a general way, certain qualities of the sound transmitted to a user's ear by his hearing aid indicates how well his hearing is being compensated for loss. If, without reading lips, he can hear what is said but has some difficulty in recognizing which person is speaking to him, his aid provides insufficient compensation at low frequencies. If, on the other hand, he can recognize the speaker's voice but cannot tell what is being said, the aid does not offer enough compensation at high frequencies. If speech of low intensity is intelligible but loudly spoken words are blurred and noisy, the hearing aid is being used at amplifications greater than those for which it is designed. For higher amplification, it is preferable to use a more powerful instrument. An occasional person with nerve loss may notice this effect with all hearing aids. In this case, however, the distortion arises within his own ear rather than in the hearing aid.

However, blurring of loud sounds may also be noticed in a hearing aid in which some part is wearing out, or when the batteries become weak. If a hearing aid that has not previously overloaded on loud sounds begins to do so and the insertion of new batteries does not remedy the condition, it may be in need of repair.

Where components with natural resonance are present, the amplification is much greater in the immediate neighborhood of the resonant frequencies. As a result, sharp sounds such as heel clicks, drum beats, or typewriter tapping, acquire a musical ringing quality. Certain speech sounds will also be affected by the resonances and will be accompanied by a ringing overtone in the transmitted sound. This may affect the intelligibility of the transmitted speech. A hearing aid that affords uniform amplification over a wide frequency range will transmit sharp sounds with their unmusical and incisive character unaltered.

A person who has unimpaired hearing can locate the direction from which sounds are reaching him because his two ears are independent and located at a distance from one another. The part of the hearing aid that picks up sounds (the microphone) is worn at only one point on the body. Therefore, with a hearing aid, directions from which sounds originate cannot be recognized. This increases difficulties with extraneous noises, since the listener cannot restrict his attention to sounds from a particular direction. In an effort to develop some type of binaural hearing when a hearing aid is used, experiments are now being carried out at several laboratories in the use of two separate instruments.

Tone controls are provided on some hearing aids to enable the listener to adjust the gain characteristics to suit himself. Such controls operate by reducing the amplification at lower frequencies or, sometimes, at both the low and high extremes of the frequency range. Sometimes they are suggested as a means of reducing background noise. Their use may be indicated by the following hypothetical illustration: suppose that one wants to increase the amplification but discovers that increased amplification creates an unpleasant reception because of noise in the higher frequency range; then by cutting the gain in this region by use of the tone control one may be able to increase the volume without the higher frequencies. It should be remembered, however, that reducing the gain at some frequencies — particularly the higher — reduces the amount of information the user gets, and the higher frequencies are particularly important in speech.

A hearing aid cannot discriminate between pleasant and unpleasant sounds. Over the same range of frequencies in which desired sounds occur, there are many irritating noises that cannot be shut out. The screeching of a hinge and the scraping of a fingernail occupy the same frequency region as do the consonant sounds essential for the recognition of words. Moreover, what may be called the "annoyance factor" of sounds is greater at higher frequencies. A person who has for years suffered a progressive loss of high-frequency hearing is therefore likely to find his first experience with a hearing aid somewhat dismaying. If it will enable him to comprehend speech, he will also rediscover the squeaks and clatter previously screened from him by his own diminished hearing. Almost any one inured to the semi-silence of hearing loss may require some time to become readapted to loud sounds. Sensitive individuals may need several months or more to become accustomed to fuller hearing. Eventually most users of hearing aids come to overlook the inevitable noises for the sake of hearing speech with ease.

Feeling that a hearing aid worn in the open is too conspicuous, some people wear their aids under the clothing. Recently, some manufacturers have provided a transparent plastic tube that acts like a speaking tube, leading from the earphone — which may then be concealed in the hair or beneath a collar — to the transparent plastic ear mold. Both of these means for hiding the hearing aid decreases the efficiency of the hearing aid for high-frequency sounds. The consonant sounds, which are very important in the understanding of speech, are in the highest pitch range. If the decreased efficiency at high frequencies gives the user trouble, he should discard the devices used for concealment; inadequate hearing may be more permanently conspicuous than an effective hearing aid worn in full view.

There are several tests that an individual can use to assist him in deciding whether he is getting the most help from his hearing aid. An inexact but very practical method for finding out how it behaves is to make an articulation test.

An articulation test is based upon the idea that the primary purpose of a hearing aid is the communication of speech. It is simply a refined method for talking to a subject and determining how much of the speech he can understand. Because understanding is involved, ordinary words common to everyone's daily life must be used. An attempt is made to choose words that represent a good sample of the sounds that make up speech. A set of such word lists, the PB or "phonetically balanced" word lists, has been developed at the Psycho-Acoustic Laboratory of Harvard University.

Two of these PB words lists are given in table 1. One list suffices for a single test, but smaller parts of a single list will not be adequate, because all the speech sounds will not be tested in their proper ratio. To avoid the effects of memory, the words should be copied on cards so that they can be presented in random order. A person who is trying out a hearing aid should get a friend to make this test with him. He should not face the reader, in

TABLE 1. *Word lists for articulation tests*

PB-50 List 1		PB-50 List 2	
1. ache	26. muck	1. bath	26. neat
2. air	27. neck	2. beast	27. new
3. bald	28. nest	3. bee	28. oils
4. barb	29. oak	4. blonde	29. or
5. bead	30. path	5. budge	30. peck
6. cape	31. please	6. bus	31. pert
7. cast	32. pulse	7. bush	32. pinch
8. check	33. rate	8. cloak	33. pod
9. class	34. rouse	9. course	34. race
10. crave	35. shout	10. court	35. rack
11. crime	36. sit	11. dodge	36. rave
12. deck	37. size	12. dupe	37. raw
13. dig	38. sob	13. earn	38. rut
14. dill	39. sped	14. eel	39. sage
15. drop	40. stag	15. fin	40. scab
16. fame	41. take	16. float	41. shed
17. far	42. thrash	17. frown	42. shin
18. fig	43. toil	18. hatch	43. sketch
19. flush	44. trip	19. heed	44. slap
20. gnaw	45. turf	20. hiss	45. sour
21. hurl	46. vow	21. hot	46. starve
22. jam	47. wedge	22. how	47. strap
23. law	48. wharf	23. kite	48. test
24. leave	49. who	24. merge	49. tick
25. lush	50. why	25. move	50. touch

order that lip reading will not affect the result. The most favorable position is for the reader to be diagonally at one side from the listener so that his face is just removed from the listener's direct line of sight. Interposition of any large obstacle between the reader and the microphone of the listener's instrument should be avoided in the test.

The presentation of the words should be done carefully. To present them naturally, they should be spoken in a sentence in a normal conversational tone. The sentence must be chosen so that the test words cannot be inferred from the rest of the sentence. A carrier sentence commonly used is "You will say * * * now." This sentence has the advantage that the "a" sound in "say" is a high-level sound and can be used by the speaker for checking on his voice level. The sentence should be spoken at ordinary conversational level.

It is unlikely that the person making the test will get 100 percent of the words correctly. Even under ideal communication conditions (with two persons in the same quiet room, but not facing each other) the random word articulation scores are usually 95 percent. Apparently, individuals with normal hearing actually judge the remaining 5 percent of the words in ordinary conversation by familiarity, context, or lip reading.

By noticing the particular speech sounds that are missed by the listener in writing down the word list, and comparing them with the chart in figure 2, it is possible to get some idea of the particular way in which the hearing aid fails to compensate for hearing loss.

Perhaps the simplest way for determining whether a hearing aid has a resonance is to listen to footsteps or a typewriter and note whether a particular note seems to be favored. If there is access to a piano, the resonance can be noticed by having someone play through the keyboard range several times with a uniform touch. If the hearing aid gain is uneven, certain notes will sound markedly louder or softer than the rest. Experimentation shows that peaks can be detected in this way if they are greater than 20 decibels in magnitude.

Guidance in Choosing a Hearing Aid

The first step in overcoming loss of hearing is to determine whether the condition responsible for the loss can be remedied or at least checked in its progress by medical treatment. The nature of the hearing loss should be found in order to know whether the loss can be compensated by a hearing aid. For the answers to these questions a physician, preferably an ear specialist, should be consulted.

If medical examination indicates that a hearing aid will be helpful, the next problem is the selection of the instrument. Numerous makes are on the market offering a wide variety of choices. Most manufacturers offer two or more models. Some dealers undertake to provide assistance in the selection of a particular model (from among their own instruments) by methods more or less similar to those outlined in the previous section.

A person shopping for a hearing aid may find it helpful to take with him a person with normal hearing so that, as he tries out different instruments, he may listen to words spoken by the same person. The prospective user should if possible try out one or more hearing aids in his own ordinary surroundings. Some companies provide a trial plan, occasionally charging a nominal rental that may be applied to the price of the instrument if it is purchased.

The American Medical Association maintains a list of hearing aids that meet its standards as to acceptability. An "accepted" instrument provides amplification that is at least sufficient for a person with moderate hearing loss. The list of accepted hearing aids may be obtained from the Council on Physical Medicine and Rehabilitation, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill. The same list is also available from the American Hearing Society, 817 14th Street, N.W., Washington 5, D.C.

After the hearing aid is selected, there is often the problem of indoctrination and of learning to make the best use of the hearing aid. This problem may be severe if the user has waited so long before purchasing a hearing aid that he has begun to forget what voices and noises really sound like and how noisy the world is. Also he may have waited until he is too old to learn readily how to adapt himself to a new device. The quality of speech heard through a hearing aid may be different from that to which he has become accustomed. The transition may be considerably helped by wearing the instrument for only an hour or two each day at first and by some systematic "auditory training" or practice in listening.

To assist the hard of hearing in some of these problems a number of "hearing centers" have been established throughout the country. Most of them are nonprofit civic enterprises under the auspices of local universities or hospitals; frequently a nominal fee for their services is charged to those who can pay it.

These centers provide a variety of services, including in many cases advice on the selection of hearing aids. Practically all of them give hearing tests. Many offer otological examination by an ear specialist, and the majority provide other forms of assistance such as auditory training, lip reading, speech training, and vocational counseling.

The hearing centers that offer demonstrations of hearing aids give prospective users an opportunity to try the types they have. Manufacturers are invited to submit instruments representing their current models, and although not all manufacturers are represented a wide variety of makes is usually available. This program has been assisted by a number of manufacturers and dealers who have supplied hearing aids voluntarily to the hearing centers. In general only instruments accepted by the American Medical Association are used by the centers. Partly because hearing centers cannot provide samples of all makes of hearing aids, they cannot be sure of guiding a person to the hearing aid best suited for him, but can give him a general idea of the compensation provided by hearing aids of various types. The centers do not sell hearing aids; an individual goes to commercial sources of supply to purchase his own instrument.

An information service on the problems of the hard of hearing is maintained by the Volta Bureau, 1537 35th Street, N.W., Washington 16, D.C. This organization was founded by Alexander Graham Bell to serve as an information center for the hard of hearing and for teachers of the deaf. It has prepared literature on the problems of hearing loss, available to the public upon written request. Similar assistance is offered by the American Hearing Society. The American Hearing Society will send to any inquirer a list of services for the hard of hearing available in its own chapters and in colleges and universities. Information as to hearing aids accepted by the American Medical Association and also concerning hearing centers can be obtained from the Audiology Foundation, 1104 South Wabash Avenue, Chicago 5, Ill.

Care of a Hearing Aid

A hearing aid is somewhat different from other devices that a person uses in his daily life, and a small amount of special care in handling it may pay substantial dividends in increased usefulness and better performance. The sensitive crystal element in most microphones and in some earphones is injured by exposure to high temperatures, and will be ruined permanently by temperatures above 120° F. Such temperatures may be produced locally if the aid is left lying in the sun, in a closed parked car, or too near a radiator. In several instruments these components are made of special high-temperature crystals or of magnetic materials which can withstand somewhat higher temperatures. However, batteries also deteriorate more rapidly at elevated temperatures. For such reasons, it is well to protect aids from extremes of temperature. The aluminum foil on the microphone is a basic part; the foil should not be pressed or scratched, or the quality of the transmitted sound may suffer.

The electrolyte in the batteries is either a moderately strong acid or a strong alkali and may cause damage if the battery cases leak. This is likely to happen when the batteries are run down. For this reason, it is advisable to separate the batteries from the instrument when it is not being worn, especially if the batteries are mounted in the amplifier case. Since the battery case is consumed in the chemical process that produces electricity in the battery, it is usually not practical to recharge the batteries. Although this is sometimes suggested as an economy measure, the probability of leakage or bursting is greatly increased because the case material is not renewed by recharging. There are some cells on the market designed for recharging. They are true storage batteries and are usually somewhat larger, heavier, and more expensive than dry-cell batteries. In an emergency, flashlight cells can be substituted for hearing aid cells of the same size. However, flashlight cells are designed for heavy but intermittent drains, and may not give as long service as the hearing-aid cells, which are built for the continuous light drain taken by hearing aids.

In warm, humid climates a hearing aid may "pass out" temporarily on a particularly damp day. The microphone and earphone are hermetically sealed, but the seal may not remain perfect, and occasionally the loss in sensitivity is due merely to moisture condensing on the exterior surfaces of the amplifier parts, between the wiring. A hearing aid may be dried out by keeping it in a desiccator when not in use. It can also be dried out by placing it overnight in a mechanical refrigerator, provided it is not exposed to moist air before it returns to room temperature. Neither a "cold-wall" refrigerator nor an ice-box will work, however, because the drying action depends on condensing the moisture on the refrigerator coils.

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AGENCIES FOR THE HARD OF HEARING

SPEECH AND HEARING AGENCIES*

Acoustical Society of America, 57 E. 55th St., New York 22, N.Y.
American Hearing Aid Association, 11 W. 42nd St., Room 416, New York 36, N.Y.
American Hearing Society, 817 14th St., N. W., Washington 5, D.C.
National Association of Executives of Chapters of the American Hearing Society, 817 14th St., N.W., Washington, D.C.
Committee on Hard of Hearing Children, American Hearing Society, 817 14th St., N.W., Washington 5, D.C.
American Speech and Hearing Association, Speech Clinic, Wayne University, Detroit, Mich.
Committee on Clinical Standards in Hearing, American Speech and Hearing Association, Wayne University, Detroit, Mich.
New England Lip Reading Teachers Association, 283 Commonwealth Ave., Boston.
Connecticut Speech and Hearing Association, Board of Education, Greenwich, Conn.
Minnesota Hearing Aid Dealers Association, Minneapolis, Minn.
California Better Hearing Council, 417-21st. St., Sacramento, Calif.
Louisiana Speech and Hearing Association, Speech Dept., Louisiana State Univ., Baton Rouge, La.
The Ohio Association of Speech and Hearing Therapy, Dayton, Ohio
Indiana Speech and Hearing Therapy Association, 2035 N. Meridian St., Indianapolis.
Iowa Speech and Hearing Assoc., 349½ Vine St., Waterloo, Iowa
International Hearing Aid Association, 6 N. Michigan Ave., Chicago 2, Illinois
Speech and Hearing Therapists Division, Penna. Speech Association, Dept. of Speech and Dramatic Arts, Temple University, Philadelphia 22, Pa.
Community Hearing Council of Greater Pittsburgh, Pittsburgh Hearing Society, 313 Sixth Ave.
American Standards Association, Inc., 70 E. 45th St., New York 17, N.Y.
Alexander Graham Bell Association for the Deaf, Formerly the Volta Speech Association for the Deaf
Mississippi Speach and Hearing Association, Speech and Hearing Clinic, University of Mississippi
Oklahoma Speech Association, Oklahoma Speech and Hearing Therapy Section, Oklahoma State Dept. of Education, Capitol Bldg., Oklahoma City
The New York State Society for Audiometrists, Inc., Elmsford, N.Y.
American Audiometric Association, Room 1311, 31 N. State St., Chicago 2, Ill.
Society of Hearing Aid Audiologists, 6 N. Michigan Ave., Chicago, Ill.
Oregon Speech & Hearing Association, Speech & Hearing Clinic, University of Oregon, Eugene, Ore.
Massachusetts Speech and Hearing Association, 12 Stanley Rd., Waltham, Mass.
North Dakota Speech and Hearing Council, 422 2nd Ave., N.W., Jamestown, N.D.
Canadian Federation for the Hard of Hearing, 12 Bloor St. E., Toronto 5, Ont., Canada
Kansas Speech & Hearing Association, Hays State College, Hays, Kansas
Hearing Aid Dealers Association of Michigan, 443 Book Bldg., Detroit 26, Michigan
California Guild for Deaf & Hard of Hearing Children, 166 S. Burlington Ave., Los Angeles, Calif.

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*Courtesy of *American Annals of the Deaf.*

HEARING CENTERS*

HEARING CENTERS FOR THE PUBLIC

Appointments must generally be made in advance. Some of these centers charge a fee: inquiries should be made about this to avoid misunderstanding.

ALABAMA

Talladega: Dowling Hospital, Alabama Hearing Center.

Tuscaloosa: University of Alabama, Speech and Hearing Clinic.

CALIFORNIA

Alhambra: National Auricular Foundation, Inc., 612 W. Shorb.

Bakersfield: Kern County Hospital, 1830 Flower St.

Inglewood: Inglewood Hearing Clinic, Masonic Temple, 230 S. Grevillea Ave.

Los Angeles: Speech and Hearing Clinic, University of Southern California, 930 W. 37th St.; Los Angeles Eye and Ear Hospital, 500 S. Lucas Ave.; Los Angeles State College, 855 N. Vermont Ave.

Palo Alto: Stanford University, Department of Speech.

Pasadena: Huntington Memorial Hospital, Pasadena Dispensary.

San Diego: San Diego Hearing Society, 3843 Herbert St.

San Francisco: Mount Zion Hospital, 1609 Scott St.; San Francisco Hearing Society, 414 Mason St., San Francisco State College, Herman and Buchanan Sts.

Stockton: Whittier College Speech and Hearing Clinic.

COLORADO

Denver: Hearing Clinic, Denver University; Evans School, School District No. 1.

CONNECTICUT

Hartford: Hartford Hearing League, 252 Asylum St.

New Haven: Audiology Clinic, Grace-New Haven Community Hospital, 789 Howard Ave.

DELAWARE

Wilmington: Delaware Hospital, Audiology Clinic, 501 W. 14th St.

DISTRICT OF COLUMBIA

Washington: Hearing Rehabilitation Center, 1911 R St. N.W., Washington Hearing Society, 2431 14th St., N.W.

FLORIDA

Gainesville: Speech and Hearing Clinic, University of Florida.

GEORGIA

Atlanta: Davison School of Speech Correction, 1780 N. Decatur Ave.; Grady Memorial Hospital.

ILLINOIS

Chicago: Chicago Hearing Society, 30 W. Washington St.; Speech and Hearing Rehabilitation Clinic, University of Illinois, 904 W. Adams St.; Department of

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*The following list of hearing centers has been compiled from lists furnished by the Volta Bureau, 1537 35th St., N.W., Washington 16, D.C., and the Audiology Foundation, 1104 So. Wabash Ave., Chicago 5, Ill. The list below is incomplete: full and up-to-date lists may be obtained from the above organizations. For lists of chapters of the American Hearing Society, write to the American Hearing Society, 817 14th St., N.W., Washington 5, D.C. This list is included as an aid for the reader. The listing does not constitute an endorsement either by the National Bureau of Standards, or the Audiology Foundation, or the Volta Bureau.

Otolaryngology, University of Chicago; Hearing Clinic, Department of Otolaryngology, Northwestern Universiy, 303 E. Chicago Ave.; Speech and Hearing Rehabilitation Service, St. Luke's Hospital, 1439 S. Michigan Ave.
Evanston: Hearing Clinic School of Speech, Northwestern University.
Normal: Illinois State Normal University, Department of Speech.
Peoria: Speech and Hearing Clinic, Bradley University.
Rockford: Rockford College, Speech Department.
Urbana: Speech Clinic, University of Illinois.

INDIANA

Bloomington: Speech and Hearing Clinic, Indiana University.
Indianapolis: Indiana University Medical Center.
Lafayette: Speech and Hearing Clinic, Purdue University.
Muncie: Speech and Hearing Clinic, Ball State Teachers College.
South Bend: South Bend Hearing Society, 203 Poledor Bldg.
Terre Haute: Special Education Clinics, Indiana State Teachers College.

IOWA

Des Moines: Des Moines Hearing Society.
Iowa City: Speech Clinic and Department of Oral Surgery and Otolaryngology, State University of Iowa.

KANSAS

Kansas City: University of Kansas Medical Center, 39th and Rainbow.
Wichita: Institute of Logopedics, Municipal University of Wichita.

KENTUCKY

Louisville: Louisville General Hospital.

LOUISIANA

Baton Rouge: Speech Department, Louisiana State University.
New Orleans: New Orleans League for Better Hearing, 530 Capdeville.

MAINE

Portland: Portland Hearing Society, 653A Congress St.

MARYLAND

Baltimore: Baltimore Hearing Society, Inc., 322 N. Charles St.; Hearing and Speech Center, Johns Hopkins University and Hospital.

MASSACHUSETTS

Boston: Boston Guild for the Hard-of-Hearing, 283 Commonwealth Ave.; Institute for Speech Correction, 419 Boylston St.; Massachusetts Memorial Hospital, Boston University School of Medicine; Winthrop Foundation and Clinic for the Deaf, Massachusetts Eye and Ear Infirmary, 243 Charles St.
Springfield: Springfield Hearing League, Inc., 1694 Main St.
Worcester: Worcester Hearing League, 306 Main St.

MICHIGAN

Ann Arbor: Institute for Human Adjustment, Speech Clinic, University of Michigan.
Detroit: Detroit Hearing Center, 535 W. Jefferson.
East Lansing: Speech and Hearing Clinic, Michigan State College.
Kalamazoo: Constance Brown Society for Better Hearing, 210 Pratt Bldg.
Mount Pleasant: Central Michigan College of Education, Speech and Hearing Clinic.

MINNESOTA

Minneapolis: Speech Clinic, University of Minnesota.
Rochester: Mayo Clinic, Audiological Section.

MISSOURI

Columbia: Speech and Hearing Clinic, University of Missouri.
St. Louis: Central Institute for the Deaf, 818 S. Kingshighway.

NEBRASKA

Lincoln: Speech and Hearing Laboratories, University of Nebraska.

NEW JERSEY

Newark: State Teachers College, 187 Broadway.

West Trenton: Hearing Clinic, New Jersey State School for the Deaf.

NEW MEXICO

Albuquerque: Speech Laboratory, University of New Mexico.

NEW YORK

Albany: Conservation of Hearing Clinic, Albany Hospital.

New York: Apostolate for the Deaf and Hard of Hearing, 191 Joralemon St., Brooklyn; Department of Otolaryngology, New York Hospital, Cornell Medical Center, 525 E. 68th St.; Hard of Hearing Clinic, Jewish Hospital of Brooklyn; Harlem Eye and Ear Hospital Hearing Rehabilitation Center, Mary Wood Whitehurst, 330 E. 63rd St.; Manhattan Eye, Ear, and Throat Hospital, 210 E. 64th St.; New York City Hospital, Welfare Island Dispensary, 80th St. and East End Ave.; New York Eye and Ear Infirmary, 218 Second Ave.; New York League for the Hard of Hearing, 480 Lexington Ave.; New York University, Bellevue Medical Center; Section of Audiology and Phonology, Presbyterian Hospital, 622 W. 168th St.

Flushing: Queens College, Speech Department.

Rochester: The Genesee Hospital. Rochester Hearing Society, 130 Clinton Ave. S.

Syracuse: Conservation of Hearing Center, Syracuse University.

Utica: Speech and Hearing Center, The Children's Hospital Home.

NORTH CAROLINA

Durham: Duke University, Division of Otolaryngology.

OHIO

Athens: Speech and Hearing Clinic, Ohio University.

Bowling Green: Speech and Hearing Clinic, Bowling Green State University,

Cincinnati: Cincinnati League for the Hard of Hearing, 616 Walnut St.

Cleveland: Cleveland Hearing and Speech Center, 11206 Euclid Ave.

Columbus: Speech and Hearing Clinic, Ohio State University.

Kent: Speech and Hearing Clinics, Kent State University.

Oxford: Speech Department, Miami University.

Toledo: Toledo Hearing League, 2313 Ashland Ave.

Youngstown: Youngstown Hearing Society.

OKLAHOMA

Chickasha: Speech and Hearing Clinic, Oklahoma College for Women.

Norman: Speech and Hearing Clinic, University of Oklahoma.

Oklahoma City: Crippled Children's Hospital (University of Oklahoma), Speech and Hearing Clinic.

OREGON

Eugene: Speech and Hearing Clinic, University of Oregon.

Portland: Portland Hearing Society, Inc., 39 Selling-Hirsch Bldg; Department of Otolaryngology, University of Oregon, Medical School.

PENNSYLVANIA

Lancaster: Hearing Conservation Center of Lancaster County, Inc., 24 N. Lime St.

Philadelphia: Philadelphia Society for Better Hearing, 2115 Chestnut St.; Department of Oto-Rhinolaryngology, Temple University; Audiology Center, University of Pennsylvania.

Pittsburgh: Department of Audiology, Eye and Ear Hospital, Medical School of Pittsburgh, 230 Lothrop St.; Pittsburgh Hearing Society, Granite Bldg., Sixth and Wood.

Reading: Clinic for Rehabilitation of the Hard of Hearing, Reading Hospital.

State College: Speech and Hearing Clinic, Pennsylvania State College.

RHODE ISLAND

Providence: Providence League for the Hard of Hearing, 42 Weybosset St.

TENNESSEE

Memphis: Memphis Speech and Hearing Center, University of Tennessee, College of Medicine.

Nashville: Tennessee Hearing and Speech Foundation, Vanderbilt University Hospital.

TEXAS

Austin: Speech Clinic, University of Texas.

Denton: Hearing and Speech Clinic, Texas State College for Women.

Galveston: Department of Otolaryngology, University of Texas, Medical Branch.

Temple: Scott-White Clinic.

UTAH

Salt Lake City: Speech and Hearing Center, University of Utah.

VIRGINIA

Charlottesville: Speech and Hearing Clinic, University of Virginia.

Richmond: Hearing-Speech Center, Medical College of Virginia.

Roanoke: Gill Memorial EENT Hospital.

VERMONT

Rutland: Vermont Association for the Crippled, Inc.

WASHINGTON

Seattle: Speech and Hearing Clinic, University of Washington.

WISCONSIN

Madison: Speech and Hearing Clinic, University of Wisconsin.

Milwaukee: Marquette University, Speech Clinic and Hearing Laboratory, 625 N. 15th St.; Hearing Clinic, Milwaukee State Teachers College.

HEARING CENTERS FOR VETERANS

CALIFORNIA

San Francisco: Veterans Hospital, Fort Miley, 42nd and Clements Sts.

DISTRICT OF COLUMBIA

Washington: Walter Reed General Hospital, Audiology and Speech Correction Center, Forest Glen Section.

GEORGIA

Atlanta: Veterans Administration Regional Office, Belle Isle Bldg., 105 Pryor St., S.E.

MICHIGAN

Detroit: Wayne University Speech and Hearing Clinic, 467 Kirby.

MISSOURI

Kansas City: Veterans Administration Regional Office, 1828 Walnut St.

NEW YORK

New York: Audiology Clinic, New York Regional Office, Veterans' Administration, 252 Seventh Ave.

PENNSYLVANIA

Philadelphia: Aural Rehabilitation Center, U.S. Naval Hospital.

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SECTION IV

CHAPTER V

THE SPEECH DEFECTIVE

SPEECH DISORDERS, BY RUTH B. IRWIN

UNDERSTANDING THE CHILD WITH A CLEFT PALATE, BY HAROLD WESTLAKE

WHAT PARENTS SHOULD BE TOLD ABOUT CLEFT PALATE, BY NOAH D. FABRICANT

HEARING AND SPEECH IMPAIRMENT IN YOUNG CHILDREN, BY WALLACE RUBIN AND JEANNETTE K. LAGUAITE

CLASSES FOR APHASICS, BY HORTENSE BARRY

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

SPEECH DISORDERS

RUTH B. IRWIN

It is a miracle that so many persons talk as well as they do. No part of the anatomy, not even the 'voice box', was intended primarily for the production of speech. The mouth, teeth, tongue, and throat are used for eating; the lungs for breathing; and the vocal folds function to prevent small food particles or gaseous elements from entering the windpipe. Yet very few persons are taught to talk, even though speech is a learned process.

It is not strange that a few individuals need some help in the learning process.

Accidents to the human anatomy also add to the toll of speech difficulties. Persons with damaged organs must learn to speak the best they can.

In the total population, the degrees of speaking ability may look much like a normal curve. The superior speakers are at one end, representing about 5 to 10 per cent; the clinical cases are at the other end, representing from 5 to 10 per cent of the population; in between the clinical and the superior groups are the "average" talkers. In Figure 1, a rough diagram illustrates the relative degrees of speech ability found in the population.

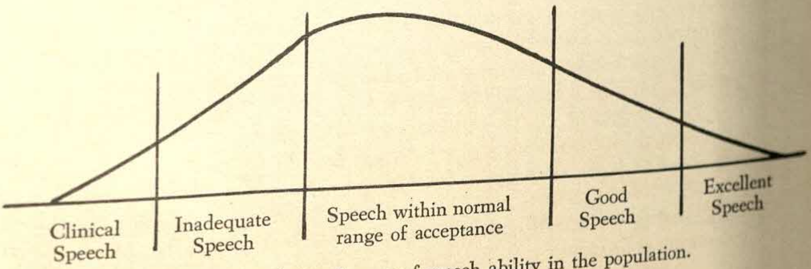

Figure 1. Relative degrees of speech ability in the population.

In this chapter, the problems associated with the clinical speech group will be discussed under these headings: (1) Speech Disorders (definition, types, causes, incidence, and handicap), (2) Historical Development, (3) Administration, (4) Educational Program, and (5) Coordination of Services.

The Speech Disorders

In this section, speech disorders will be discussed as to incidence, definition, types, causes and handicap.

Incidence. Of all the handicapping conditions, speech deviations are the most prevalent. The number of speech-defective children far exceeds the number of any other group of handicapped children in the following recent report[19] of the estimated incidence of the various types in Oklahoma:

Slow Learning	15,000
Crippled	1,800
Epileptic	500
Deaf and Hard of Hearing	7,500
Speech Defective	25,000
Blind and Partially Seeing	1,250
Total	51,050

Of the total number, the children with speech handicaps are almost as numerous as all the other types of handicapped children put together. The distribution, estimated by the Oklahoma authorities, is similar to that found in other states.

The results of surveys indicate that percentage figures vary considerably. Wide variations in the number of children found in surveys may be due to (1) standards of speech, (2) experience of examiner, (3) methods of testing, and (4) background of the community. If the mean average of the survey findings reported by Johnson and Gardner[12] is used, ten per cent of all the school children have speech deviations serious enough to need special speech education.

Various school surveys[10] in Ohio indicate that from 7 to 10 per cent of the children need speech therapy. One carefully conducted survey in Cleveland, in which 5,552 children (kindergarten through grade six) were tested by qualified therapists using the same standards, revealed that 10 per cent of the children had speech difficulties. Not counting the kindergarten, the percentage figure was reduced to 7.7. The children in the Cleveland survey were located in ten representative school districts. Another survey was conducted in a Cleveland area populated with people of professional and high socio-economic standing and children with higher than average intelligence. Of the 8,320 children, tested by an experienced therapist, 8 per cent needed special speech instruction.

In a thorough and individually conducted speech survey[16] of 4685 children in the first three grades at Holyoke, Massachusetts, 10.1 per cent of the children were found to have speech disorders. Some studies on the effect of maturation on defective articulation indicate that articulation improves, in general, from grade to grade, even without speech therapy. The most marked improvement occurs in the early grades, and after the fourth grade level little change occurs. There is very little improvement from grade to grade in high school.

Surveys of high school students show that the incidence of speech problems is great enough to warrant speech therapy. In Dayton, Ohio, pupils in two large high schools[10] were individually tested by an experienced therapist, who found about 20 per cent with noticeable voice and articulation deviations. As the result of a speech survey conducted in the high schools of Illinois, Carhart reported that "with every fifth Illinois high-school student needing rehabilitation, there exists a severe problem".[3]

One of the most comprehensive speech surveys[20] ever made was the New England survey which was conducted by nurses, teachers, therapists, doctors and others. Of the 87,288 children tested, 7.8 per cent had speech deviations.

The committee of the American Speech and Hearing Association which prepared the report[1] for the Midcentury Whitehouse Conference indicated that 5 per cent (2,000,000) of all children, ages 5 to 21, is the "lowest defensible estimate" of the number of persons with speech disorders. However, they estimated that an additional 2,000,000 children, or 5 per cent, have relatively minor speech and voice deviations. On the basis of an assumed total population of 150,000,000 persons, the committee estimated that 7,500,000 or 5 per cent of the population of all ages have speech problems.

From a practical standpoint, probably 10 per cent of the school population needs special speech instruction if the classroom teacher has had little or no training in speech.

Definition. Speech or voice is deviant when it (1) interferes with communication, (2) calls attention to itself or the speaker, and (3) causes the speaker to develop symptoms of personality maladjustment.

Various degrees of severity may occur; however, it is difficult to say when a problem is major or minor. Some authorities believe that there is no such thing as a 'minor' speech disorder. A person with what appears on the surface as a minor sound deviation may have all kinds of emotional reactions because of it. For instance, the life story of an adult who had a 'minor' deviation revealed that the problem was major in his case. As a child, he could not say the "l" sound. The children teased him . . . so, he learned to talk with words that did not contain the "l" sound. As he grew into adulthood, he developed feelings of insecurity and inadequacy. His own words indicated the extreme silent suffering that he had endured because of his 'minor' speech problem.

The symptom of stuttered speech may not appear severe to the listener or observer, but to the one who stutters the problem may be major. It is not the speech problem itself as much as it is the reaction of the individual to his problem. Consequently, the casual observer is often deceived as to the relative severity of the speech handicap.

Not all deviant speech will interfere with communication, call attention to itself, or cause personality maladjustment. A stutterer, for instance, may stutter so severely and be so affected by the reactions of others to his deviation that he may become maladjusted. On the other hand, a young child not yet aware of his speech deviation will not react emotionally to the problem. However, his speech may be deviant enough to interfere with communication or be noticeable to others. The single sound substitution, such as "t" for "th", will probably not interfere noticeably with communication or personality development but it will call attention to itself. After a time, the 'simple' defect may grow in importance as others call the speaker's attention to his deviation.

Types. The types of speech problems are usually classified according to disorders of (1) articulation, (2) voice, (3) rhythm, and (4) language. However, an examination of Table I will indicate that other classifications are used. The speech may be classified according to causation rather than by symptom as specified in the above classification. The speech of a child with cerebral palsy or a cleft palate may be characterized by defective articulation, inadequate voice quality, and poor rhythm. The child with cerebral palsy may also have language problems. The etiology of speech problems will be considered later.

The two types of data (case loads and surveys) show some discrepancies as to the number of the various kinds of speech disorders. For instance, from 20 to 30 per cent more children with articulatory deviations are enrolled in classes for therapy than might be indicated by the survey figures. This may be accounted for by the fact that the therapists are probably not handling all of the other types of cases found in the surveys. However, Table I will give some idea about the general distribution of the different types of speech problems.

1. Disorders of articulation. From 75 to 80 per cent of the speech-handicapped children enrolled in speech-therapy classes have functional articulatory disorders. Substitutions, omissions, and distortions usually describe the kinds of sound deviations found in the speech of persons with articulatory disorders. Substitutions are usually the most frequently observed sound deviation. The child, who says, "tu witta kikers", substitutes "w" for "l" in "little", and "k" for "s" in "sisters". Omissions may occur any place in the word. It is frequently omitted at the end of words in careless speech although the person can say the sound correctly. Distorted sounds are indistinct and do not approximate any known speech sound. The "th", "s", "z", "sh" are among the most frequently misarticulated sounds.

2. Disorders of voice. According to Table I, the Whitehouse Conference estimate that 4 per cent of all speech-handicapped persons have voice problems is the same as the percentage figure for voice cases found in the case loads of Illinois therapists. In the New England survey, more persons with voice problems were found than are reported to receive therapy in the public-school speech classes.

Voice problems are usually described in terms of (1) pitch, (2) quality, (3) intensity, (4) rate, and (5) flexibility of pitch, quality, intensity, and rate. Occasionally, a person is found who has no voice at all. Pitch may be too high, too low, or too monotonous. Quality is often described as breathy, throaty, nasal, guttural, harsh, or hoarse. Volume may be too loud or too soft for adequacy in a situation. The rate of speaking may be too fast, too slow, or too jerky for the best communication. An individual may have a generally unpleasant voice to the listener, but cannot be described as

TABLE I. Incidence* of the Various Types of Speech Disorders (percentage figures are in terms of the total number of speech-handicapped children).

	Case Loads			Surveys		
	Illinois (1953)	California (1952)	Ohio (1953)	Chicago (1951)	New England	Whitehouse Conference ASHA
Functional Articulatory	80.0	77.0	81.0	80.0	50.0	60.0
Stuttering	7.0	15.0	8.0	14.1	10.9	14.0
Voice	4.0	....	1.0	1.3	6.6	4.0
Cleft Palate Speech	0.8		1.0	0.9	1.2	2.0
Cerebral Palsy Speech	0.8	7.0 (organic)	1.0	2.0	1.0	4.0
Retarded Speech Development	4.0	....	3.0	....	4.4	6.0
Impaired Hearing	2.0	....	1.8 (lipreading)	0.8	15.4	10.0 (with speech defects)
Aphasia	....	....	....	....	0.5	....
Deaf	....	....	....	....	8.4	....
Miscellaneous	0.1	....	1.2	0.9	1.6	....

*Published in *The Speech Teacher*, 1955.

belonging to any one category; he may have inadequacies in pitch, quality, intensity, rate and flexibility.

3. Disorders of rhythm. Stuttering (or stammering) is a disorder of rhythm. Repetitions of sounds, syllables, words, or phrases may characterize stuttering. Long pauses or prolongations of sounds may occur. Facial contortions, excessive bodily movements, or embarrassment during speech may also accompany the communication process of the stutterer. No two stutterers have the same speech symptoms or behavior. Cluttering is a type of stuttering. Speech is slurred, improperly phrased, jumbled and rapid.

4. Disorders of language. Aphasia is usually associated with language disorders. Not many aphasic children are found in the schools; it may be, however, that there are more children with language problems than may be indicated by surveys. Teachers may not be adequately aware of the symptoms. A pronounced reading, writing, or speech disability may be evidence of a possible disorder of symbolic formulation and expression due to some brain-damaging conditions. Speech retardations, or failure to develop speech during early childhood, may be a symptom of language disorder. A great deal of confusion exists in this area of language disorders. It is a problem of differential diagnosis. Does the child have a condition of brain damage, hard of hearing, deafness, or mental deficiency? Or it may be that the child is emotionally disturbed.

Language disorders are frequently associated with adults who have had some form of brain damage through an injury or a stroke. The adult may have difficulty in (1) forming the sounds or words, (2) finding the word or expression he requires, (3) using grammatical structure, and (4) comprehending words and phrases as a whole.

Causes. Speech problems are caused by both physical and psychogenic factors.

1. Physical. Cerebral palsy and cleft palate are extreme forms of physical conditions which may cause various kinds of speech problems. Hearing impairment will account for 10 per cent of the speech deviations, according to the estimate of the ASHA. Malocclusions, such as on open bite, overjet or underjet jaw, or irregularity of the teeth may interfere with the accurate production of sounds. Particularly affected by the teeth are "s", "z", "f", "v", and "th" sounds. Brain damage may be instrumental in producing language abnormalities as well as speech deviations. Incoordination, due to damaged neurological system, prolonged illness, and low mentality are also physical factors which may affect speech development and production.

2. Psychogenic. A psychogenic factor is one which has its origin in some psychological or learning situation. Unfavorable relationships with others, improper teaching methods, poor standards of speech, and some misevaluations of the problem are some of the psychogenic factors which may produce or add to the speech problem. Lack of motivation, bi-lingualism, shocks, emotional conflicts, and poor speech-sound discrimination ability are also factors.

No one factor or group of factors can usually be defined as the cause of a speech problem. Neither can the cause be considered an *either* physical *or* psychogenic problem. Speech deviations may begin as a learning process and develop into a psychological problem because of various factors in the environment which enlarges the problem.

Handicap. Although some speech-handicapped persons achieve success in spite of their problems, many persons with speech disorders are retarded in various ways. A speech problem may be responsible for (1) grade repetitions, (2) reading disability, (3) personality maladjustment, (4) impaired personal relationships, (5) complete withdrawal from school, (6) inadequate earning power, (7) undesirable occupation, and (8) social misfit.

Some authorities have estimated that the earning power of the speech-handicapped person is about 25 per cent deficient. Not only is income cut, but so is the satisfaction derived from doing a desirable job. One person with unintelligible speech took a position in a lens factory where she did not have to talk. A stutterer worked as a plumber; he did the work, his brother did the talking.

Several studies have indicated the close relationship between reading and speech disabilities.[11] Which comes first? Speech improvement tends to improve reading ability.

The handicap of a speech deviation is difficult to evaluate in terms of the personal suffering which the person may undergo as the result of teasing, ridicule or glances.

HISTORICAL DEVELOPMENT OF SPEECH SERVICES

Speech services for speech-handicapped children are relatively new, particularly when compared to services for other more dramatically handicapped persons. Study of speech pathology, as a profession, is little more than 25 years old. The growth of speech therapy will be discussed in two parts: (1) The Public Schools, (2) The Professional Organization.

The Public Schools. Before 1940, only nine states had legislation recognizing the speech handicapped child. These states were: Wisconsin, Missouri, Minnesota, Indiana, California, Maryland, Tennessee, Virginia, and Delaware. Wisconsin was the first state (1913) to enact special statutes for speech services. From 1940 to 1946, 13 states made some provisions for speech handicaps; from 1947-1953, 16 states added legislation permitting the recognition of speech problems.

In general, state legislation has been permissive with some provision for subsidizing speech services in the local communities. The reimbursement plans are on the basis of (1) 'excessive cost', (2) a specific amount, or (3) a proportion of the total cost.

By 1941, only 9 states required certificates of speech therapists; in 1953, 35 states had certification requirements. As in state legislation, great variation occurred from state to state. During the last ten years, much improvement has been made in the standards of the training required of speech therapists. According to Irwin, ". . . 15 states probably require enough credits in speech and hearing to meet the standards specified by the American Speech and Hearing Association for the Basic Certificate."[9] As many as 5 other states could probably be added to this list of 15 states requiring at least 18 semester hours of speech and hearing courses.

The large cities extended services to the speech-handicapped before the towns and rural areas. Chicago (1910), New York (1909), Cincinnati (1912), Detroit (1910) and Cleveland (1918) were among the first cities to start programs of speech therapy in the schools.

The Professional Organization. In 1914, the first university speech clinic[17] was established at the University of Wisconsin with Dr. Smiley Blanton as director. Because of the demand for speech therapy in the schools, there arose a need for college training of persons to serve as therapists. Gradually, colleges and universities began to assume the responsibility of training speech therapists. States in which speech services are recognized by the state legislature usually have several university training centers. For instance, in Ohio five universities have curricula approved by the State Department of Education. The secretary of The American Speech and Hearing Association can give the names of the colleges and universities which have adequate facilities for qualifying speech therapists to meet the certification requirements of the profession.

Although some speech correction has been practiced for a long time, professional recognition and prestige have been acquired during the last 30 years. The activities of The American Speech and Hearing Association and the scholarly articles published in *The Journal of Speech and Hearing Disorders* have contributed greatly toward professional recognition. The membership of this association has grown remarkably from a list of twenty-two names in 1925 to 3161 in 1954.

The development of certification standards has also given the profession added prestige. The present certification requirements of The American Speech and Hearing Association will be indicated later in this chapter.

Clinics operated by private organizations or hospitals have also grown during the recent years. The Junior Leagues, particularly in the South, have been responsible for clinics which serve the community. Societies for Crippled Children have furnished salaries and equipment, especially in the area of cerebral palsy. Children's hospitals have added speech clinics. As the result of the wars, emphasis is placed upon the speech re-education of men with aphasia, impaired hearing, or facial injuries.

ADMINISTRATION OF THE PROGRAM

The initiation of a new program of speech therapy in a community and the administration of an established program present many problems for the administrators. The discussion will be centered around these headings: (1) major problems, (2) preliminary organization procedures, and (3) organization and maintenance of services.

Major Problems. Several problems must be solved before satisfactory service can be extended to the speech-handicapped persons: (1) inadequate supply of qualified speech therapists, (2) insufficient speech education in the classrooms, (3) lack of community awareness for the need of speech services, and (4) inadequate budget and space.

1. Speech Therapists. The recruitment of prospective speech therapists is needed as much as for any other type of teacher, and possibly more since many people are not yet aware of speech therapy as a profession. Many school districts, particularly in rural areas, are ready to employ therapists but can find no one willing to live in the country.

The large communities have their problems of finding therapists, too. In a summary of a survey,[5] made in 1951, of cities with populations over 100,000, 87 per cent were furnishing special classes for the speech-handicapped children. However, 21 per cent of the cities reported that they were short of therapists, with the greater shortages in cities of 250,000 and over.

The ASHA committee estimates that a complete program of speech therapy for the United States would require about 15,000 therapists! Only about 2000 speech therapists with professional qualifications are now working. For various reasons, replacements require from 100 to 200 new therapists each year for every 1000 active workers in the field, according to the committee's estimate.

2. Speech Education in the Classrooms. Although many classroom teachers desire to help the children with speech problems, they usually have little or no training in speech. Some of the teacher-education colleges and universities are now requiring prospective teachers in the elementary schools to take courses in speech, including a special course in speech problems.

3. Community Awareness. A speech and hearing therapist may be available for a particular community, but the parents or school administrators are not yet ready to accept speech therapy as a needed activity of the school curriculum. "We don't have any speech defects", is a response that is not uncommon in communities not yet aware of speech difficulties. This is a very real problem which has to be solved before any steps can be taken.

4. Budget and Room. The State Department of Education may have a

plan to subsidize a part or all of the program on an 'excess cost' basis. In communities where only a fraction of the cost is reimbursable by the state, other provisions of paying for the program must be found. It is not always easy to add a new expense to the budget; but once the community is aroused to the real need for the program, a way will be found to provide the necessary funds. In many schools where the program is new, the therapist may work in highly unsatisfactory working conditions. The nurse's room is popular; the ladies' rest room may be used; or even the principal's office with its ringing bells and constant interruptions may function as the 'speech therapy room'.

Preliminary Organization. Starting a new program of speech services in any community involves the cooperation of many individuals and organizations. A committee of all interested persons may be a way to get started. The survey which indicates the need for the program will be a good motivating device.

In the public schools, Figure 2 will illustrate how the various departments in the school may cooperate in developing a program of speech therapy.

The steps in the preliminary organization of a new program of speech therapy are as follows: (1) to discuss with the school superintendent the advantages and need for speech therapy; (2) to meet with all the school heads, presenting the program; (3) to meet with the classroom teachers, explaining and demonstrating the various types of speech problems; (4) to conduct a survey, individually, by an 'imported' therapist or by a questionnaire method following the lecture; (5) to report the results of the survey and make recommendations to the administrators and teachers; (6) to conduct a short workshop in speech re-education for the classroom teachers; (7) to find a qualified speech therapist to work with the severe cases and assist the teachers with others; (8) to provide an adequate budget and space for services; (9) to utilize all of the resources of the school and the community; and (10) to apply to the State Department of Education for preapproval forms or procedures for receiving reimbursement from the state.

Probably the best way to indicate a real need for special speech education is to conduct a survey. It does not matter how many surveys have already been made in other communities. The question is . . . "Do we have any speech problems in this school?" Qualified persons to make an adequate survey of the speech needs may be secured from the nearest university speech and hearing clinic. The State Department of Education will also usually be able to suggest staff and procedures.

If a qualified therapist can be secured, an individually conducted survey is much more thorough than any other method. Furthermore, the therapist who conducts the survey can also explain the various types of speech problems to the teachers and indicate in what ways the teachers may help until such time that the school can employ a full-time therapist.

If a questionnaire type of survey is made, the Speech Inventory will be helpful. However, this Inventory should not be used unless preceded by a talk which explains the various types of problems to consider.

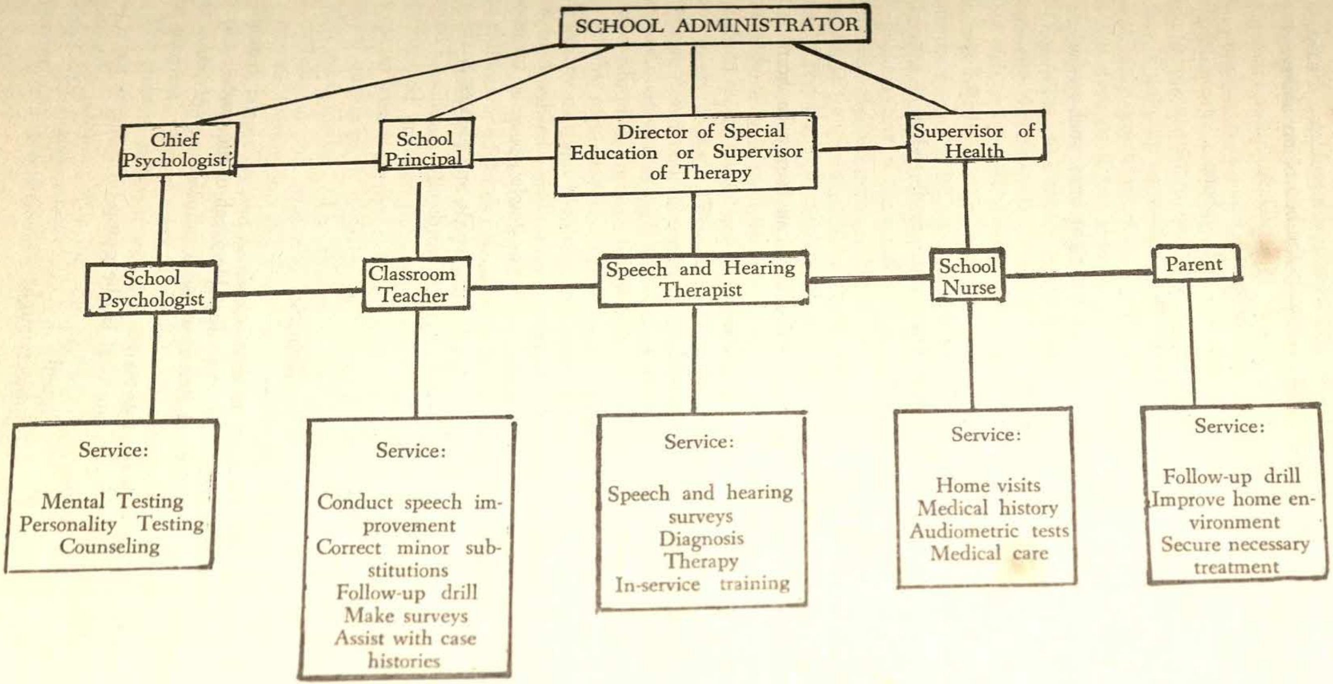

Figure 2. Diagram Showing How the School Community May Cooperate in the Development of a Speech and Hearing Program. (Adapted after diagram in *Speech and Hearing Therapy* by R.B. Irwin, published by Prentice-Hall, Inc., New York, p. 19.)

SPEECH INVENTORY[8]

I believe the pupil tested below has a speech problem. I have filled out the following questionnaire to the best of my ability.

Name of the pupil .... Class ....

Age .... Birth Date .... School ....

Address .... Telephone ....

I. Articulation
  1. Can hardly understand him...............
  2. Omits certain sounds...............
  3. Uses "baby-talk"...............
  4. Substitutes wrong sounds for right ones, such as "w" for "r"...............
  5. Has a foreign accent...............
  6. Has a "sloppy" speech...............
  7. Distorts certain sounds...............
  8. Protrudes tongue for s-z sounds...............
  9. Sounds which appear inaccurately made: p-b-m............ wh-w............... t-d-n............... h............... y............... k-g-n-g............... f-v .... th............... l-r............... s-z............... sh-zh............... ch-j...............

II. Voice
  1. Usually has a weak voice and can hardly be heard in class ....
  2. Has very monotonous voice...............
  3. Is too breathy when talking...............
  4. Is throaty and guttural...............
  5. Has husky hoarse voice...............
  6. Sounds too nasal...............
  7. Is too high pitched...............
  8. Speech lacks variety and life...............
  9. Usually talks in a whisper...............
  10. Usually talks too fast...............too slowly...............

III. Fluency
  1. Repeats initial sounds, syllables, words, and phrases........
  2. Blocks sometimes and can't get words out...............
  3. Speech is jerky...............

IV. Other problems
  1. Has cleft palate...............
  2. Has cerebral palsy...............
  3. Appears to be hard of hearing...............
  4. Very poor oral reader...............
  5. Avoids speaking in class...............
  6. Appears tense and uncomfortable much of the time........
  7. Has symptoms of nervousness...............
  8. Usually shy...............
  9. Frequently too aggressive...............
  10. Does not co-operate well in the group...............

Comments:

Signed ....

Subject taught ....

Although step six, workshop for classroom teachers, may be postponed until a therapist is employed, it may be worthwhile to conduct a series of in-service speech re-education meetings for the teachers shortly after the speech survey is made. In this way, the various problems can be illustrated by children whom the teachers know. Moreover, definite suggestions could be made for the teacher to carry out in the classroom. This would be one more way of arousing an interest in developing a full program of services for the seriously speech-handicapped children.

The new therapist is not always experienced or mature enough to work with classroom teachers in an in-service training program during the first year. Organizing and conducting classes in speech therapy is a big task for the beginning therapist; therefore, the in-service training program should probably wait at least for a year. Holding a series of in-service meetings for teachers before an organized program is started has two advantages: (1) aids the teacher to help the child in the classroom, and (2) assists the new therapist during the first year.

The qualifications of the successful speech therapist are both academic and personal. Specialized speech and hearing courses should approximate those required for certification in The American Speech and Hearing Association. The complete requirements may be found in the June issue, 1952, of the *Journal of Speech and Hearing Disorders*.[4] In general, the Basic Certificate indicates that the applicant has had 18 semester hours in specialized speech pathology, 3 semester hours in audiology, and 9 semester hours in psychology. These certificates, granted by the American Speech and Hearing Association, do not mean that the possessor is qualified to work in the public schools, as each state has its own certification requirements. Courses in education are usually the additional specifications not mentioned in the ASHA requirements. However, a holder of a state certificate in speech therapy may also have a Basic or Advanced certificate in the ASHA.

Basic or Advanced Certification is often required of individuals applying for positions in speech therapy. All persons working with speech-handicapped children or adults should hold or be eligible for the Basic Certificate. Therapists doing private practice are usually expected to qualify for the Advanced Certificate. Not until administrators and persons seeking speech therapy demand qualified therapists will the 'quack' completely disappear. There are no laws to prevent any one from practicing speech therapy.

Personal qualifications desirable in a therapist are much the same as for any other good teacher. The therapist should be able to work well with others, develop rapport with children, work independently, take responsibility, tolerate frustration, and face problems realistically, and should be well adjusted, adaptable, and enthusiastic about speech therapy.

No plan is complete without adequate consideration of the necessary budget to develop successful services. How much does the state reimburse for the program? Excess cost? Certain percentage? Exact amount specified? The problem will be to raise the rest of the money if all of the money needed is not reimbursed by state funds. In addition to the salary, thorough administrative planning will include provision for such expenses as the following: (1) transportation between schools, (2) equipment, supplies, and printing, (3) secretarial help, and (4) adequate room facilities.

After plans have been made, the school administrator needs to apply to the State Department of Education for procedures to qualify for state subsidy, if there is any. Standards of instruction, room facilities, equipment, and qualifications of the therapist are usually specified by the state office personnel.

Organization of Services. A qualified therapist has been employed and is approved by the State Department of Education if that is necessary for state aid. Problems of eligibility and admission, work schedules, and supervision are to be considered.

A public-school speech therapist should probably not handle over 75 cases during any one week. Whether the therapist handles 50 or 100 cases will depend largely on these factors: (1) number of serious cases, (2) experience of the therapist, (3) amount of traveling, (4) number of schools visited, (5) grade level of the children (in high school, fewer cases can be handled), and (6) responsibilities for in-service training, hearing conservation, or other activities.

The great demand for speech services often places pressure upon the therapist to take more cases than is wise for the best results. Representatives from 12 states, or about 50 per cent of those reporting, indicated that the maximum case load allowed during any one week in the public schools was one hundred cases. In a few states, even larger loads are permitted. Nebraska therapists have the lowest case load of those reported, with 55 as the maximum load allowed.

In private clinics, case loads will usually be considerably smaller than those found in the public schools. The cases are often more serious and demand more attention than a large percentage of the public school cases.

Flexibility should be allowed in all case loads according to the factors specified above. Large case loads destroy the purpose for which the program is designed — that is, to improve or alleviate speech problems.

A qualified speech therapist must make the final decision whether or not to take a child for regular speech therapy. For all serious cases, the therapist may work with other specialists before deciding what program of treatment to follow. Some form of definite admission through the administrator's office should be followed, so that the therapist can be protected from sporadic referrals from teachers and others. "Waiting lists" are also used by therapists who cannot take all of the cases which need help. As soon as some of the simple articulatory problems are corrected, new cases can be taken.

In deciding what children to include in the speech-therapy classes, the following factors should be considered: (1) the severity and prognosis of the problem, (2) the age and grade in school, (3) the intelligence or ability to profit from instruction.

The large part of the therapist's time in the public schools is spent in meeting regularly scheduled classes in speech therapy. These classes usually meet at least twice a week for 25 to 30 minutes each. The therapist travels to four or five schools. The schedule of the schools may be something like this:

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning:	School A	School B	Non-scheduled activities	School A	School B
Afternoon:	School C	School D	Non-scheduled activities	School C	School D

By such a schedule, the children are seen with fairly equal intervals between sessions. Two times a week is not as often as children should be helped with speech; but with the cooperation from the classroom teacher, some integration of speech activities can be worked out. On Wednesday, many therapists like to do what is often called 'co-ordination activities'. These responsibilities are home visitations, counseling with parents or teachers, working on case histories and records, or surveying speech and hearing in areas not yet surveyed. In schools where the therapist has no responsibility for hearing, one-half day for co-ordination of the services for the children in the case load is usually enough. However, the other half day might be used to great advantage in counties or cities where there are more children with speech problems than the therapist can handle. Speech therapy may be given to the worst cases, even though it is only once a week. Some school administrators prefer to use the extra half day for examinations and counseling with parents and teachers about children who are not located in the schools serviced by the therapist.

If only one therapist is employed, the superintendent and principals are the supervisors. In cities where several therapists are working, a director of special education may be available for administrative supervision. It is also desirable to have an experienced therapist to act as chairman of the therapists with some time allowed for professional supervision. In all cases, the principal of each building in which the therapist works should expect to be the immediate supervisor, just as he is of any other teacher in the building.

Educational Program

The educational program for the speech-handicapped child is not much different from that for any other child enrolled in school. He needs just a little extra help in order to compete favorably with his classmates who do not have speech handicaps. Usually, the child is taken from the classroom for 20 to 30 minutes, twice a week, when the therapist gives him the kind of speech therapy which he needs. Except for the short speech periods a few times a week, the speech-handicapped child takes the same course of subjects as the other children do. The therapist works with the teacher to arrange a schedule for the child which will interfere least with his academic subjects. Because of the infrequent speech sessions which the therapist can direct, the cooperation of the teacher and the parent is usually necessary.

Speech Therapy. The speech lesson plan for articulatory deviations usually includes such items as (1) auditory discrimination, (2) review of old material, (3) introduction of new material, and (4) carry-over activities using sounds which have been taught. For those children who need social rehabilitation, group therapy offers an excellent opportunity for the child to gain confidence in his ability to speak before people who accept him. Backus and Beasley,[2] in their procedures, have contributed much toward the socialization of the reticent child with the speech problem. Many of the same educational principles used by the classroom teacher are also used by the therapist in teaching speech.

1. Auditory Discrimination. Several types of auditory discrimination or ear training are used by the therapist. For instance, the child needs to recognize the correct sound when it is heard. So the therapist may say, "Listen and watch. I am going to say some sounds (or words). Some of them will have this sound "s" and some will not. You raise your hand when you hear the "s" sound." The therapist continues this drill until the child is able to recognize the sound correctly. Another type of ear-training activity is one in which the therapist might say, "I am going to say two sounds (or words) which may sound the same or not the same. If they sound the same to you, raise your hand." Variations of these techniques may be found in textbooks used by the therapist.

2. Review of Old Material. 'Old material' refers to that speech work which has been done during the immediate preceding session. For instance, the sound may have been introduced by ear-training only. Consequently, a review of the same technique is used to reinforce the learning process and to check if the child has learned how to recognize and discriminate. The review is based upon the stage of therapy in the production of a specific sound.

3. Introduction of New Material. Supposing that the child is able to recognize and to discriminate the sound in the review section of the lesson; the next step might be the actual production of the sound by the child. The therapist may say, "Now we are ready to say the sound. Listen carefully. I am going to say the sound "s" three times, pause, and then say it once again. When I nod my head, I want you to say it once. Understand?" This procedure is repeated several times before another type of technique is used. Irwin's *Speech and Hearing Therapy*[8] will explain these techniques in more detail. However, only a qualified speech and hearing therapist should attempt to use these techniques. Although the child may appear to have a 'simple' sound difficulty, the individual working with the speech must be aware of the danger of calling attention to the speech inadequacy and thereby developing personality abnormalities in the child.

4. Carry-over Activities. After a sound has been taught in all of its stages, activities which give the child or person an opportunity to practice his sound in real-life situations will help to establish the sound in everyday speech. Such activities as playing store, house, telephoning, parties, and short conversations will help. In the beginning, these activities need to be highly structured so the individual learning to remember how to say his sound will not have too many things to think about. It is at this stage of therapy that the parent and classroom teacher can assist the therapist. However, definite assignments which can be carried out in the classroom or at home need to be made. For instance, if the child is able to say "Thank you" but still has to think about it, the parent or teacher might be instructed to give the child an opportunity to say "Thank you" several times each day.

Procedures for voice therapy follow a similar pattern. After organic factors have been ruled out, the therapist will help the person with unsatisfactory voice attributes to (1) realize the value of a good speaking voice, (2) reorganize differences among voices through auditory training, (3) develop a satisfactory voice quality in small units, and then (4) transfer the 'good' voice to everyday situations.

Persons with stuttering symptoms present individual problems of treatment. Usually, the therapist will work toward helping the stutterer to (1) accept problems realistically, (2) develop habits of personal hygiene and self improvement, (3) learn techniques for control of symptoms, and (4) be his own clinician.

Language disorders[18] caused by the aphasias, palsies, and brain damages require specific techniques. Children with emotionally inhibited speech also need a particular kind of therapy.

Although it is not the purpose of this chapter to give a detailed account of therapeutic techniques in speech, some idea of what the speech therapist does is desirable.

The Classroom Teacher. Every teacher is a teacher of speech whether she knows it or not. Since speech plays such an important part in the daily activities of any schoolroom, a knowledge of speech education is essential for the teacher. The teacher needs to (1) be a good speech model herself, (2) know how to conduct speech activities in her own classroom, (3) know how to recognize speech problems, and (4) know how, or if, to help the speech-handicapped children in the classroom.

1. Speech Model. The teacher's speech should be free from all noticeable deviations. Her speech should also be acceptable according to the standards of her locality. If the teacher has poor diction, harsh voice, or muffled speech, how can the child be expected to improve? In fact, the children may even assume some of the speech patterns of the teacher. Not enough thought is given by school administrators to the importance of 'good speech' as an essential qualification of the teacher.

Quite a number of teacher training institutions are now requiring that teacher candidates attain a high standard of speech. Courses in voice and diction may be required; in some cases, remedial instruction is given.

Several years ago, a certain teacher training institution hired several supervising teachers who had defective speech. The primary teacher talked with a 'mushy' or muffled voice in addition to having a pronounced lateral lisp which made the "s" and "z" sounds come out the sides of the mouth instead of the center. The director of teacher training had such a harsh voice that the college students had difficulty listening to her without feeling some irritation. This school represents only one example of how teachers may be employed without due regard to the effect that speech deviations have on the persons who hear them.

All prospective teachers should be required to take a proficiency test in speech before beginning professional training. If the speech deviation cannot be removed or improved adequately, the individual should be discouraged from entering the teaching profession. All other prospective teachers should do all they can to improve their own speech.

School administrators, alert to the possible effects of inadequate speech upon the speech of the children, will employ teachers with speech which is free from all noticeable deviations and is pleasant to hear.

2. Speech Improvement. Speech improvement is an all-inclusive term referring to any kind of planned speech activity which tends to improve the speech of the participant. The total speech education program in any school provides for (1) the child with speech problems and deviations, (2) the child with 'near normal' or 'normal' speech, and (3) the child with talented speech abilities. The classroom teacher who has improved her own speech and has had some special training in speech-improvement techniques can do much to aid the child with 'near normal' speech, as well as to assist the child with speech deviations. By participating in group speech-improvement activities, the child may learn to recognize the correct sound, learn to say the sound, and reinforce the production of the sound without becoming self-conscious about his deviation.

Fundamental speech skills include the consideration of (1) the ability to hear speech correctly, (2) the ability to use language, (3) the ability to articulate intelligibly, (4) the ability to adjust to the speaking situation, and (5) the ability to use the voice adequately and pleasantly.

During the day children in every classroom have opportunities to practice the speech skills through the means of conversation, choral speaking, discussion, story-telling, oral reports, dramatization, and oral reading. With some knowledge of the skills used in "good" speech, the classroom teacher can assist the child without requiring much extra time or effort.

3. Recognition of Speech Problems. A study of the symptoms of the various types of speech problems will aid the teacher in the recognition of those children who need special help in the classroom or by a therapist. The teacher can be taught to assist in making surveys of speech-defective children. The Inventory of Speech, given earlier in this chapter, is a means of teacher education in studying the symptoms of speech deviations and the accompanying problems. A demonstration and explanation of the various types of speech problems should be given to the teachers by a specialist in speech disorders.

4. Helping Speech-Handicapped Children in Classroom. Being a good speech model, using speech-improvement activities, and recognizing difficulties will aid the speech-handicapped child. What to do, and what not to do, for the child with a serious speech problem is essential. The book *Speech-Handicapped School Children*[13] provides sections at the end of almost all of the chapters on "What the Classroom Teacher Can Do" to aid the speech therapist and when there is no therapist available.

One of the most valuable ways of helping the child in the classroom is to develop a 'mental hygiene agency', or a clinical point of view, as Johnson describes it. The factors discussed by Johnson[13] as playing important roles in contributing to the mental health of the child are (1) personalities of the teachers, (2) methods of discipline, (3) systems of grading, (4) handling of recitations and homework, (5) extra school activities, and (6) special services in the school.

The classroom teacher who is interested in the speech abilities of her pupils will strive to (1) provide a good model of her own speech, (2) learn to recognize the various speech deviations, (3) improve the speech of the 'near normals', and those with 'minor' sound deviations, (4) cooperate with the speech therapist in helping children with speech disorders, and (5) understand the relationship of speech to reading, behavior problems, achievement, and personality development. In schools where no therapist is employed, the classroom teacher will direct the speech-handicapped child and his parents to the nearest university speech and hearing clinic.

Special references for the classroom teacher will be found at the end of this chapter.

The Parent. The parents or relatives may be important forces in the re-education process of the speech-handicapped person. Factors which may have produced or added to the speech problem may still be operating. The discussion of the parent's part in the educational program of speech-handicapped children will center around (1) the improvement of home influences, (2) learning about speech disorders, (3) cooperation with the therapist.

Influence. Anything that the parent or relative can do to increase the feeling of security and belongingness in the speech-handicapped person will indirectly have an effect upon the speech improvement. The elimination of tension is essential. Sometimes children are known to stutter at home but not at school. A five-year-old boy started stuttering after his mother left home; he was waiting for her to come home. The adult aphasic needs relatives who understand how to help him.

A change of attitude toward the speech-handicapped child may be important. Is the parent oversolicitous, rejecting, or perfectionistic? Being a 'good' parent will help. Wood has said that "the mother and father be encouraged to play the role of a better parent in constructing a happier home where the child will want to listen to what is said and will have a chance to respond to parents he loves."[23]

A confusion of languages adds to the child's problem. He hears one at school and another at home. The father or mother may have the same type of speech problem that the child is trying to correct at school. What good is the therapist doing if the child goes home and hears the wrong auditory patterns? Speech re-education will be slow unless the parents or older brothers and sisters can also serve as models of good speech.

An understanding of speech disorders, as to types, causes, and remedies, will be helpful to the parent. Articles and books, written for the parent, will be found in a special bibliography at the end of this chapter.

In schools where a speech therapist is employed, conferences and special meetings for parents are often held. Through discussion and observation in the clinic, the parent learns to understand the need and value of speech therapy.

Fortunate is the parent who lives in a school district where speech therapy is available. In some cases, however, the parent may not be able to obtain help due to the overcrowded program of the therapist.

Homework for the child enrolled in speech therapy varies according to the therapist. Speech notebooks are often used. The parent is asked to secure pictures to represent certain sounds being studied in class. After the child has learned to say the word, the therapist may ask the parent to spend a few minutes each day with the speech book having the child name the pictures. This procedure helps the child to reinforce the sounds.

Visitations to the clinic will help the parent to understand the procedures. Through demonstrations, the therapist may show the parent how the child can be helped at home. However, in many instances it is not desirable for the parent to give any direct help on speech. It is enough to cooperate in some of the other important ways; for instance, just being a good parent may be enough.

The parent should work toward these goals: (1) to face facts about themselves and their children's speech problems, (2) to improve home influences, (3) to cooperate with the speech therapist, (4) to learn to understand speech problems, and (5) to encourage the child to improve his speech without 'nagging'.

Coordination of Services

The person with a speech problem is often seen by members of a number of professions. Coordination of the findings and recommendations of the various consultants is not always satisfactorily achieved for the welfare of the speech-handicapped person. Confusion may arise, particularly if the recommendations do not agree.

Since speech problems may be associated with bulbar polio, meningitis, congenital aphasia, hearing impairment, laryngectomies, adult aphasia, cerebral palsy, cleft palate, and organic dysphonias, the need for the assistance and cooperation of members of the medical profession is necessary. In the hospital clinics the speech therapist, by necessity and desirability, works closely with the medical specialists.

In private clinics for cerebral palsied children, all of the members of the staff usually function as a team, working together for the welfare of the child. Periodic conferences are held to explain what each member of the team is doing and how the others may assist. For instance, the speech therapist who can work with the speech only occasionally tells the occupational therapist or the academic teacher how they can help with the speech. The cerebral palsied child requires the services of a pediatrician, a neurologist, a physiotherapist, a psychologist, an occupational therapist, an academic teacher, a speech therapist, as well as that of his parents. In any well-functioning speech program for the child with cerebral palsied speech, a close working relationship with all members of the team will exist.

The child with a cleft palate also poses a problem of cooperation among the various specialists. The team which needs to meet periodically to discuss progress and recommendations for the future care of a person with cleft palate includes the plastic surgeon, the orthodontist, the prosthedontist, the otologist, the teacher, the parents, the psychologist, the pediatrician, the speech therapist, the audiologist, and the otolaryngologist.

The team approach is needed with other types of speech problems caused by organic factors. Persons with impaired hearing, aphasia, and brain damage are among those who need a team of experts to unify the various diagnoses and recommendations at periodic intervals.

In some schools, child-study groups meet regularly to discuss the needs and recommendations of children with specific problems. On the team for the speech-handicapped school child may be a parent, a teacher, a principal, a psychologist, a speech therapist, and others who may be definitely interested in helping the child to meet his needs.

In situations where the team of experts does not function periodically, the child may be shunted from one specialist to another without anyone to coordinate the findings or recommendations. Kantner raises the question, "Who will put the child together again?" Dr. Kantner develops the point of view that each specialist should try to make his specific contribution fit into a whole pattern. Kantner writes that "one is tempted to suggest the addition of yet another specialist to the bewildering galaxy already in the field . . . a specialist, shall we say, in 'wholism'."[14]

SUMMARY

Speech disorders have been described as to (1) definition, (2) types, (3) causes, (4) incidence, and (5) handicap.

The profession of speech pathology is relatively young. In the public schools, state legislation, permitting financial aid for speech-handicapped children, has developed largely since 1940. Training programs in the colleges and universities have also been a recent development. Professional maturity has been attained within the past 30 years.

The major problems which the administrator faces in starting a new program are (1) lack of community awareness of the need for speech therapy, (2) inadequate supply of therapists, and (3) insufficient funds or space. The development of a successful program must have the cooperation of many persons and organizations. The administration of the program involves (1) eligibility and admission of children and adults, (2) work schedule of the therapist, and (3) work load.

The educational program of the speech-handicapped person, except for the physically handicapped, is much the same as for any one else. Children are usually taken out of the regular classrooms twice a week for special therapy. Adults with organic problems may need special vocational counseling. The classroom teacher and parent or relative are important persons in the speech re-education process of an individual with a speech problem.

The 'team concept', or the co-ordination of all services of specialists, is important if the speech handicapped person is to achieve maximum benefits from the rehabilitation program.

RECOMMENDATIONS

In considering the needs of the field of speech pathology, the following recommendations are made:

1. Speech therapists should be expected to have specialized training in speech pathology equivalent to that recommended by the American Speech and Hearing Association for Basic or Advanced Certificates. State certification standards, in many instances, need to be improved and standardized to conform with the best training practices.

2. Developing awareness for the need for speech therapy in many communities is needed. Surveys and talks will help.

3. Recruitment of students to study in the area of speech pathology should be encouraged.

4. Prospective classroom teachers should be required to pass speech proficiency tests before entering the teaching profession. Principles and techniques of speech therapy and speech improvement which the teacher can use in the classroom should also be taught to every classroom teacher who is in training or in service.

5. Special attention needs to be given to particular groups or types of speech disorders. Those speech problems, associated with cerebral palsy, cleft palate, and 'slow learners', present different issues from those of the functional, articulatory, or stuttering type of speech. A state speech and hearing consultant, who can devote full time to the organically involved speech-handicapped child and adult, may be desirable.

6. Not enough speech aid is given to pupils in the high schools. They need to be found and helped.

7. Additional research and study are needed in all areas of speech pathology and related fields. The development of speech and surveys have been explored rather adequately. However, there is great need for more knowledge concerning (1) techniques, (2) administration of program, and (3) evaluation of therapy.

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UNDERSTANDING THE CHILD WITH A CLEFT PALATE*

HAROLD WESTLAKE

The problem of dealing with the cleft palate person cannot be left to the specialists alone. The behavior of the family, neighbors, friends, teachers, employers, and even of strangers may be significant. Perhaps relatively few readers of this article will work directly with a cleft palate problem; but every reader may deal with one indirectly many times; thus the information here presented should be helpful.

How the Cleft Occurs

One child in every 750 live births has a developmental irregularity affecting the upper lip or the palate, usually referred to as a cleft lip or a cleft palate. The term *cleft* denotes a space or division, and actually means openings between folds of tissue that did not grow out to meet each other and fuse to form a complete upper lip or palate during the development of the child.

Early in prenatal life a stage occurs when the embryo has no face at all; the place where the face will later develop is occupied by an irregular trapezoidal space. The lower half of this space is bounded by an arch of tissue in which the mandible will be formed; the upper margin is made up of tissue in which the cranium and brain will grow. This area which the face will later occupy is gradually filled in by three folds of tissue. One fold grows downward from the upper margin of the space; two folds branch from the sides of the mandibular arch below and grow upward and forward. When these three folds meet and fuse the face is complete. The fold which grows downward from above makes the forehead, the upper margin of the eye, the nose, and the middle portion of the upper lip; the folds which grow inward from the sides of the mandibular arch make the cheeks, the lower borders of the eyes, and the outer portions of the upper lip.

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The palate, which makes a division between the nasal and oral cavities, forms a little later than the face. The front part of the palate, roughly the portion bearing the single cusp teeth and having the rough surface called the "rugae," grows backward as a wedge from the mid-portion of the upper lip. Two plates grow inward from each cheek and join in midline to form the smooth part of the hard palate and the soft palate. The front borders of these plates meet and fuse with the wedge that has grown backward from the mid-portion of the upper lip.

The lines along which the fusion has taken place to form the face and palate can thus be visualized. On the face the lines would follow the lower eyelids, then descend along the sides of the nose, and finally dipping in a little toward midline would go straight down across the upper lip from each nostril. The lines of fusion of the palate would begin on each side at about the points of eruption of the upper canine teeth and proceed at an angle backward and toward midline. The two lines would meet at the center just behind the rugae, and then proceed backward as a single line along the center of the hard and soft palate to the tip of the uvula. No visible trace of the fusion shows on the face, but a line is usually visible in the midline of the smooth part of the hard palate, progressing backward along the soft palate.

Failure of growth of any part, or failure of the parts to fuse once they meet, could result in a cleft anywhere along the lines of union. Clefts along the sides of the nose are rarely seen, possibly because a developmental failure so profound would be too great for the embryo to survive. However, clefts of the lip and palate occur more frequently. The cleft may affect one or both sides of the upper lip, the upper alveolar arch, and the front third of the hard palate. Since there is only the single center line of fusion for the remainder of the hard palate and the soft palate, the cleft of these parts can occur only along that line. Clefts vary in location and in degree: they may be small notches in the lip, perforations in the hard and soft palate, or simply a short division at the end of uvula; on the other hand, they may affect both sides of the upper lip, and both sides of the front of the hard palate, and continue on the midline through the rest of the hard and the soft palates. Clefts occur in all degrees and combinations of locations.

The Problems Precipitated

The presence of a cleft carries many possible threats to the personality; one of the most important is the cosmetic effect. The operated upper lip is frequently scarred, immobile, and short. The vermilion border of the lip may be uneven. The nose, particularly the nostrils, may be irregular. Teeth may erupt unevenly, or some may not develop at all. Frequently, the failure of the upper jaw to grow downward and forward normally makes the mandible and lower lip seem to protrude, or the jaws appear to be mismatched.

Irregularities of dentition and roof of the mouth cause feeding problems. Mastication is difficult, and food and fluids may get into the nose. A relatively high percentage of cleft palate persons have hearing losses. The reason for this finding is as yet a matter of speculation, but the significantly greater incidence of hearing loss among the cleft palate population does establish a relationship between the two conditions. The hearing losses are predominantly of the conductive type, and otologic study of cleft palate persons reveals frequent signs of infection, even in those who fortunately escape handicapping hearing loss. A defensible, if not altogether established, interpretation is that although the ear is not primarily involved in the developmental interruption, it is secondarily involved in that the deformity of the palate makes the ear more vulnerable to infection.

The speech is usually affected in two ways: the voice is frequently hypernasal, and articulation is difficult. Fully as important as the kind of speech is a consequent reluctance to talk. The parents of young children are aware that a cleft can cause a speech problem. Sometimes they do not expect or encourage the youngsters to try to talk. Others, by correcting even the first words, make the children feel from the beginning that they cannot be understood or that what they are doing does not satisfy their parents. As they grow up the poor speech calls attention to the problem, and talking is avoided as much as possible.

Problems like stuttering, hearing loss, or a cleft palate are generally recognized to be less difficult to deal with in themselves than in the effects they produce on the persons. The baby born with a cleft lip looks different from other children, and parents react to this difference. Possibly too much has been written about feelings of guilt and rejection which are expressed overtly by a few parents and interpreted by professional workers in others; nevertheless, parents cannot help feeling a tremendous anxiety for the baby who is certain to face many problems in growing up and making his way in the world. From the very beginning he is likely to have a serious feeding problem. The early experience, considered important to the emotional development of an infant, may not be satisfying. Instead of experiencing the soft, warm feeling of the mother form, he may encounter stiffness and tension because of his difficulty in nursing and swallowing. The emotional environment of such individuals is likely to be strained from the beginning and to remain abnormal as they grow up in the different attitudes of the family and friends, and later of strangers. A "different" child faces a world where difference poses hazards.

The listing of possible problems should not be interpreted as an abstraction of the personality children with a cleft palate necessarily develop. Many of them have had such good surgical and dental care that they are unusually good looking. They do not have to have handicapping hearing losses. Their speech may be average or even better, and frequently the personal adjustment is good, even when appearance and speech are not. The conclusion that all persons with cleft palates are misfits would be erroneous, and the sympathetic feeling often resulting from such a conclusion might make a good adjustment difficult.

The Group Approach

The variety of problems that can occur as a part of or as a result of the cleft is such that no one person or one profession can deal with it completely. The trend has been to work out cooperative arrangements among different workers. In the most common plan the surgeon takes the general responsibility for a child and makes referrals to other specialists as he sees the need for other services. In another plan put into motion in many parts of the country, no one person makes the decisions; a team of specialists makes the examinations and works out the plan for habilitation. The complete services of a team include pediatrics, surgery, general dentistry, orthodontia, prosthodontia, social service, psychology, speech, otology, and psychiatry. The pediatrician is responsible for the general health of the patient and determines when he is strong enough to withstand surgery. The surgeon usually closes the lip as soon as a baby is strong enough; if the palate is to be closed surgically he does this at the appropriate time later. The surgeon subsequently performs a series of operations such as making adjustment on the nose and lip, removing scars, and freeing scar bands at intervals during the total growth period of the child.

Many dentists who have worked on habilitation programs hold that cleft palate persons are highly susceptible to dental caries. If prosthodontic appliances are to be used the patient must have teeth to which the appliances can be anchored. The general dentist plays an important role in caring for the teeth and maintaining good oral health. The orthodontist does much to improve the appearance and speech of the child by straightening the teeth; to the extent that he can widen the maxillary arch and shift the incisors forward he makes more space for the speech activities of the tongue. By either extracting or moving malpositioned teeth he can make the configuration of the dental arch more regular, thus facilitating the precise valvings the tongue must make in articulating. The prosthodontist supplies missing teeth. When the crippled upper jaw has not achieved the downward and forward growth necessary for good occlusion with the lower teeth and support for the upper lip to make a satisfactory appearance, a complete denture is often attached to the subject's own teeth; it completely covers them and carries a full complement of upper teeth positioned where the teeth would have been if the upper jaw had grown normally. Surgery is not always the best means of closing a palate, and the operated palate does not always adequately close off the nasal pharynx. For such cases the prosthodontist can often fashion an appliance which seals off the opening in the palatal vault and can be extended into the pharynx; as the pharyngeal muscles close over the appliance, it serves the function in speech ordinarily required of the soft palate. The dental specialists are members of the team.

The social service worker takes histories, visits the home, interviews members of the family, and presents to the team a complete picture of the attitudes, insights, and general competence of the family to cooperate with a habilitation plan. The social worker explains the program to the family and usually has administrative duties in seeing that the necessary appointments are scheduled and that the program is followed.

Because hearing losses frequently occur in persons with a cleft palate, hearing tests should be frequent; and necessary otologic service should be available. The psychologist gives tests of mental and social development. The psychiatrist works with emotional problems, and the speech therapist deals directly with speech difficulties. All serve in planning and executing the program.

The need for so many different services presents an administrative problem in conducting the staff meetings at which programs are projected for new cases and reviews of progress are made. Ideally all the specialists would sit around one table and review cases together. Practically, such a plan is laborious, and a tremendous number of professional man-hours are consumed. Therefore, it is expedient to carry out the staffing with a skeleton force composed of the social service worker, the surgeon, the orthodontist, the prosthodontist, and the speech therapist. Other persons are called in for consultation on particular cases.

THE PROSTHETIC APPLIANCE

Prosthetic appliances are being used frequently with cleft palate cases. As stated above, the involvements vary greatly from person to person, both as to degree and location. Sometimes the surgeon has little tissue with which to build a satisfactory palate, and rather than risk an unsatisfactory result, he decides upon an appliance at the beginning. Sometimes the surgeon can repair the hard palate but is unable to make a functional soft palate, and the prosthetic appliance supplements surgery. And sometimes when the age of the patient makes an operation inadvisable, but better velopharyngeal closure is needed, the appliance is the only recourse.

The speech appliance consists essentially of three parts: (1) a front portion corresponding roughly with the area of the hard palate, (2) a bar which bridges the soft palate, and (3) the speech bulb which is molded to fill in the space between the end of the soft palate and the walls of the pharynx. If the hard and soft palates have not been operated at all, the appliance is molded to fill in the clefts in those areas as well.

Ordinarily the function of the front portion of the appliance is to provide the retention for the whole device. Retention is achieved by clasps fitted around the subject's teeth. Missing teeth are supplied as an integral part of the appliance; when the downward and forward growth of the maxilla has been markedly deficient, the appliance completely covers the natural teeth, and a full set of artificial teeth is supplied in approximately the position the subject's own teeth would have had in normal growth.

The mid-portion of the appliance is a simple bar connecting the speech bulb and the front or retaining portion. The speech bulb, which is attached to the end of the bar, almost completely fills the space between the end of the palate and the pharyngeal walls. When the muscles of the pharynx are relaxed, the space between the outer rim of the bulb and the pharyngeal walls is narrow, but still sufficient for drainage and normal breathing. When the nasal pharynx must be sealed off to build up oral pressure for the plosive or fricative consonants, a mild contracture of the pharyngeal muscles establishes a contact between the margin of the bulb and the pharyngeal walls.

The valving above described is in terms of a bulb placed relatively high in the pharynx, approximately on a line with the highest point of the arch of the hard palate. The bulb can be placed in a lower position. In some cases, the bulb has a downward and backward direction, following the posterior pillars, and the valving is achieved by a contraction of the posterior pillars which contact the bulb as they shift toward midline. In relaxed positions, the pillars are just a little to the side of the bulb, leaving passages that are adequate for drainage and respiration. Although some prosthodontists are inclined to place all the bulbs in one position, the most favorable position should be determined for each subject, since the efficiency of muscle activity seems to vary with different persons at different levels.

The permanent usefulness of an appliance depends upon the maintaining of good retention. Since losing teeth is a threat to retention, oral hygiene is of great importance. When cooperation from the subject or the subject's family is questionable, the appliance is a doubtful investment. In such a case if surgery is an option it is usually the better one. The specialist in charge should see subjects who wear appliances at regular intervals to maintain the teeth used for retention and to check the fit of the retaining clasps.

The Therapist and Diagnosis

The speech therapist functions on both the diagnostic and the service programs. In the initial examination, the speech therapist, the surgeon, and the dental specialists are all interested in the same structures; but each interprets what he sees from his own orientation. When the whole problem is assessed, the speech therapist presents his opinions on the adequacy of the structures for speech and gives his judgment on what should be done to improve the chances for good speech.

In evaluating a cleft palate case the speech therapist may emphasize the obvious and neglect the most important facts. Knowing that a cleft exists, he almost instinctively gets a tongue depressor and a light and studies the palate, whereas he should find out first how well the person can talk. Is there nasal escapage on pressure sounds? Is the ratio of nasal to oral resonance satisfactory? What sounds are not made? What sounds are made well? The manner in which the sounds are made is just as important to observe as the sharpness of the sounds. The person with a cleft palate may have been using his tongue in some uncommon way in eating. Sometimes the sounds are not sharp only because the tongue is not used properly; the difficulty may have no direct relation to the palate.

The speech therapist observes the length and movement of the lip; he looks for perforations in the lip, alveolar arch, and hard and soft palate which could permit the escape of air and sound into the nasal cavity; he studies the size and shape of the upper dental arch and palatal vault to see whether space is adequate for the tongue to move freely; and he evaluates the effects of missing teeth and teeth that have erupted out of line. He studies the activity of the soft palate and the pharyngeal walls to see whether velar closure can be made more efficient or whether activity would be sufficient to ensure good use of an appliance. He must assess many conditions to determine the potentials for speech. The soft palate is only one of the major considerations.

To serve well on a professional team the speech therapist must know the normal structure of the parts used in the act of speech; and he must be able to evaluate the effects of irregular conditions and project plans for their improvement. To be accepted by a team of specialists, the speech therapist must have sound training and thorough clinical experience.

Therapy and the Service Team

To outline a specific training technique in this article would be inappropriate, but general principles for training have emerged from clinical experience. Some of these, as observed by the writer, are as follows:

1. There are few subjects whose speech cannot be significantly improved, even when the structure appears to be most inadequate for speech and even though little can be done to improve it.

2. One of the most useful ways to develop speech in young cleft palate children is to cultivate in the parents an encouraging, receptive attitude towards the children's first speech efforts.

3. The goal of speech training is to improve oral communication. The clinician frequently best serves this end by helping the children to improve the sounds they can make fairly well. The sounds that the cleft palate child should make as well as anyone are sometimes the ones most distorted.

4. It is usually necessary to reduce the effort made on the most difficult sounds. The cleft palate child sometimes works so hard at producing elements impossible in terms of the existing structures that the excessive effort distorts the preceding and following sounds. Intelligibility is often considerably improved if he is taught to omit or to slide over the sounds that he is not equipped to produce well.

5. In spite of inadequate velar valving, most consonants can be made acceptably if they are made quietly. With reduced effort, nasal escapage will not be heard even though it is present.

6. In the past too much attention may have been given to articulation and palatal valving. Phonation is also important. If the balance of resonance is in the direction of nasality rather than orality, reducing the nasality is not the only way of establishing proper balance. Often the child needs routine voice improvement drills in addition to special techniques for cleft palate cases.

7. In the past certain clinical clichés have been developed — such as having all voice cases develop diaphragmatic breathing and having all cerebral palsied persons relax. The cliché for the cleft palate person was to have him "blow." Many hours have been spent by children who tried to influence the inevitable even dispersion of gaseous pressure and direct air through the mouth when there was no necessary structural barrier to deflect the air stream. The almost universal use of blowing did not constitute a scientific method, but the current rejection of blowing may be a similar clinical cliché. The writer believes that blowing exercises with selected children who have fairly good operated palates with function susceptible of improvement, or with children who have been fitted with speech appliances which they must learn to use, can be rewarding.

8. A period of training before an appliance is fitted is worth while. First, if the speech therapist uses resistive techniques to develop the muscles of the pharyngeal wall, he may develop a control of the gag reflex and a tolerance for foreign materials in the mouth that will enable the prosthodontist to work more freely in taking impressions and fitting the appliance. Second, the actual increase in muscle activity that can be developed will improve the chances of using the appliance efficiently. Third, during the training the speech therapist is constantly studying the general configuration and the

activity of the structures and thus develops many ideas concerning the shape and the positioning of the speech bulb.

9. One of the best ways of giving the cleft palate person an objective rather than an emotional attitude toward his problems, as well as a real insight into the objectives of his training, is to let him observe normal palates and compare them with operated palates and appliances.

10. It is a mistake to think all children, particularly adolescents, are going to accept an appliance gratefully. Even when the changes in speech and appearance are dramatic, some persons cannot accept them. They are much aware of being "altered" and the difference, even when it is apparently for the better, makes them feel self-conscious with their friends. Often they seem quite unable to accept the sensation of a bulk of material that fills and changes the whole oral and pharyngeal area. With most children probably too little time is spent in explaining what is to be done and in preparing them for the changes.

WHAT ANYONE CAN DO

Clearly, the remedial treatment of cleft palate persons requires a therapist of specialized background and experience; yet, as previously observed, many non-specialists have to deal with cleft palate persons in some way. Most speech teachers, no matter what their major interests, want to help handicapped persons. Perhaps this discussion can help to channel the assistance.

When a teacher is confronted by any special problem he may be so acutely aware of the unique services he cannot give that he forgets what he can do. For example, the teacher who has a hard-of-hearing child in his room may feel frustrated because he cannot give the child a hearing aid; the teacher may forget the more important things he can do for the child; he can make the child a respected and wanted member of the group; and he can teach him to read. The following suggestions that any mature person may follow in dealing with a cleft palate child lack the dramatic frame of the clinic, but they may be more helpful than anything a clinic can do:

1. If a child with a cleft palate is withdrawing from the group, help to make some place for him in the available activities.

2. In drawing a cleft palate child into any activity, be sure not to force him into a position of prominence that he is not prepared to use, but bring him in gradually in a modest way. To give a child opportunities that are out of proportion to his abilities and needs is a disservice to him.

3. Doubtless all cleft palate persons have personal problems as other people do; possibly their problems are more acute. Knowing what some of the difficulties might be does not give the therapist license to expose them in conversation. One must respect the privacy of any individual who chooses not to discuss his affairs; at the same time, however, a mature teacher can establish a permissive atmosphere that allows a pupil to talk if he wishes. A teacher should seek help if serious problems emerge, but will himself give practical help in immediate crises. Having the friendly interest of a mature adult is a useful ego support.

4. Personal appearance is not related solely to a scarred lip. Dress, grooming, cosmetics, and other aspects are important. Cleft palate children can look well and should be encouraged to do so.

5. Ordinarily the services important to a cleft palate child extend through his entire growth period. Sometimes a child loses contact with his medical adviser and the parents may assume that everything has been done that can be done, whereas only those things were done that could be accomplished at a certain age. Assuming an active role in referring a child can be a touchy problem because parents and children sometimes solve their problems by forgetting them. They may resent anyone's bringing up unpleasant subjects. Ordinarily, the possibility of additional treatment should be explored by the school nurse or other health officers. A teacher cannot make a positive recommendation, but she can often raise a question tactfully with a nurse or parent and possibly thus initiate further assistance for a youngster who is being overlooked. A review of case history should be made by a specialist or at a cleft palate center rather than by the family physician; but such a suggestion must be made tactfully so as not to give offense.

6. Unfortunately many families and dentists who observe the displaced teeth in cleft palate cases conclude too early that there is not much point in preserving the teeth; they believe a full denture will have to be used later anyway. As was explained above, the subject's own teeth, however irregular, can serve as the essential anchor for the prosthetic devices. To provide stable speech appliances for persons who have lost their teeth is often impossible. Urging regular dental care and good oral hygiene is an important service to the cleft palate child.

7. Even though in many states facilities for good habilitation are available to families of low economic level at no cost, some people, because of personal, financial, or family reasons, cannot have the help they need immediately. Providing information on what can be done later is at least a good ego support. Without being wildly optimistic, one can be reassuring on the final outcome. Probably no handicap appears worse than a cleft palate in a newborn child; but no other problem can be dealt with so readily at such relatively small cost. With cooperation and insight on the part of all concerned the prospects for overcoming the handicapping aspects of the deformity are promising.

WHAT PARENTS SHOULD BE TOLD ABOUT CLEFT PALATE*

NOAH D. FABRICANT

Knowledge of the existence of cleft palate in a newborn infant often comes as a considerable shock to parents. For many people cleft palate brings to mind a squeamish recollection of some person once seen or known who had difficult-to-understand speech, a facial deformity as likely as not accompanied by "harelip," and which aroused a mixed emotion of pity and revulsion. Unfortunately, cleft palate has had this implication for many people only because they have not been adequately informed about the vast possibilities the child with a cleft palate actually has today to develop into a normal person. In this connection, physicians can play an important educational role by outlining to parents the modern-day facts about the management of cleft palate infants and children.

To begin with, it is perfectly natural for parents to wish for the birth of a normal baby and to be intensely disappointed with the information that their new offspring has either a cleft palate or cleft lip or both. Certainly, parents should be told that cleft palate is no respecter of social class and occurs at all economic levels in approximately one birth in every ten to twelve hundred newborn infants. While a number of theories have been advanced to explain the failure of tissues to join together, none have been established with finality. Nor should parents assume that cleft palate is causally related to intermarriage of cousins, feeblemindedness, or syphilis. The presence of one condition does not presuppose the presence of another, and an infant with cleft palate is no more likely to be mentally defective than any other newborn infant. In reality, cleft palate does not run in families; about 80% of cleft palate babies are born to families without a known history of the defect. As a general rule, the parents of an infant with cleft palate need not fear to have other children on that account, and persons who have a cleft palate usually need not be concerned about having children of their own, particularly if there is no history of the defect in the family of the mate.

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According to Backus, one of the best ways parents can achieve an unemotional acceptance of the problem is to start behaving at once in a matter-of-fact way, mentioning casually to other people the presence of a cleft palate or lip in the newborn infant. The news itself should produce less gossip value if it is accepted openly at once. Indeed, parents who become adjusted to the idea of having a child who has a cleft palate will often raise a child who will develop into a well adjusted person. Like charity, adjustment should begin at home, and for parents adjustment should start from the day of the newborn infant's birth. The infant should be treated as nearly as possible as if he were normal, and the parents should be instructed not to become over-solicitous or over-protective.

In children with cleft palate a number of special problems are likely to develop. For example, such children are prone to infection, and especially infections of the middle ear. As much as possible, upper respiratory infections should be treated with a sense of immediacy. This is also true of exposure to contagious childhood diseases. Indications for tonsillectomy and adenoidectomy should be established only after sufficient joint consultation between otolaryngologist and oral surgeon.

It is important that parents be made to understand that the best type of cleft palate surgery is performed by a specialist skillful in cleft palate surgery, especially since surgical repair of a cleft palate or lip involves more than "closing a hole." The responsibility in great measure for providing as normal and attractive a facial appearance as is possible to obtain falls, of course, upon the oral surgeon himself. Also upon him rests the responsibility for constructing palatal tissue that is capable of normal function and eventually of normal speech. Parents should be reassured that fatalities from cleft palate surgery are extremely rare.

In addition to the services of the oral surgeon, it is important that the parents obtain the advice and services of a dentist from the time of the eruption of the first tooth at about six or seven months of age until full development of the jaws has occurred. The dentist should be an individual who comprehends the special dental problems associated with the cleft palate condition. From time to time, the dentist, in turn, finds it necessary to call for the assistance of an orthodontist in the management of special dental problems.

Parents of cleft palate children should consult a speech clinic during the first few months of a child's life and should not wait until defective patterns of speech have developed before seeking help. Backus points out that in relation to cleft palate the speech clinic can serve most effectively if its role is both preventive and corrective, with emphasis as much as possible on the preventive aspect. Since speech is a developmental process and since it is influenced by various factors, this relationship between parents, child and speech clinic will extend over a period of several years.

Today, summer residential clinics are available in many states for cleft palate children. For young adults and adults with cleft palate, a number of college and university clinics offer an intensive type of instruction. These facilities have contributed greatly to the progress made in the field of cleft palate defects.

HEARING AND SPEECH IMPAIRMENT IN YOUNG CHILDREN*

WALLACE RUBIN AND JEANNETTE K. LAGUAITE

Most of us are aware of the recent advances in the diagnosis and treatment of hearing loss in adults, but there has been comparatively little interest in the hearing and speech problems of young children, that is, those under six years of age. The general practitioner, the otolaryngologist, or the pediatrician are often the first to be consulted concerning a hearing or speech problem in a young child. Frequently the advice given is to wait for improvement. Were these children investigated thoroughly in the beginning, proper treatment could be instituted and further problems, such as speech deterioration and personality maladjustments, could be prevented from developing. It has been through the efforts of those working in the fields of clinical psychology, speech therapy, and audiology that progress is being made. We feel that the physician should no longer avoid this responsibility but should work hand in hand with those who have done so much to unearth basic information.

In most cases the presenting complaint has been one of lack of development of speech. One reason for our difficulty has been failure to realize that deafness is not the sole cause for a child not responding to sound. The training of a hearing impaired child differs greatly from that of the other children with speech retardation, and consequently it is important to make the differentiation early. If we are to unearth some of the other causes for speech retardation, the total behavioral pattern of the child must be analyzed.

Another difficulty is to decide what method to use in testing hearing in young children. This is undoubtedly due to the fact that the average physician is not familiar with the tests that have been developed. Unfortunately, we have assumed that the same hearing tests used for adults can be used for children, but, as we have all learned from experience, pure tones are unsuitable stimuli for young children. Actually, the child does not respond

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*Used with special permission of *The Journal of the Louisiana State Medical Society* and of the authors. Dr. Rubin is instructor in the Department of Otolaryngology, Tulane; Miss Laguaite, assistant professor of speech pathology, Department of Otolaryngology, Tulane.

consistently to pure tones because he is immature and they do not signify anything meaningful to him, such as does the sound of a bell or whistle. In other words, the child is no more mature perceptually than he is physically or emotionally.

Speech develops in a normal hearing child as a result of two forms of stimulation. First, the urge from within which finds expression in vocal form, and second, auditory stimulation from without, in the form of words which reach him through personal relationships. Both of these factors can be present for the deaf child. The first factor is natural, that is, the urge from within, and the second, that of auditory stimulation from without, is up to the people in his home environment. In infancy, a deaf child's social relationship should not be different from the normal. All obvious wants can be satisfied because they relate to the body and are simple. As the child grows, however, gestures do not suffice as stimulation for the mind. The child must be able to hear and use language in order to be able to develop abstract concepts.

An extremely important fact that has not been realized until recently is that there is absolutely no difference between the vocalizations of the normal child and those of the child who is severely deafened, up until the age of 18 months.[3] In both, the vocal play is rhythmic and there are natural variations in loudness and pitch. They show trills of laughter, indignation, and emotion. Contentment is evidenced by quiet rhythmic tones, and urgent desire by louder and stridulent ones. These, we all know, are considered normal. However, after the age of 18 months, if the deaf child is left to himself, he tends to lose interest in using his voice and becomes more and more silent, unless he is disturbed emotionally. When he begins to use his voice less, he makes his wants known by pulling, pushing, and gesturing. Here at the age of 18 months the psychological and emotional breakdown of the child begins. If the natural pleasant tones of a deaf child are encouraged so that they are repeated day after day they become fixed in the child's mind through kinesthetic sensation. Finally, these pleasant sounds become automatic and serve as a natural basis for the development of speech.

Now let us return to the problem of testing the hearing of young children. If pure tone testing is not applicable, what then is the answer? In our opinion, the limitations of pure tones can best be overcome by the use of free field tests. Free field tests are those whereby the sounds are presented freely in the immediate area surrounding the child. This procedure is in contrast to that of presenting the sounds directly to the ear as is done in the formal audiometric test. Sound makers such as bells, symbols, pitchpipes, and whistles are suitable for producing the sounds. The approximate frequency and intensity range of each sound maker can be determined. Readings can be taken at given distances from the ear and thus the intensity can be regulated. The response to sound by this type of testing is determined by a method called "cessation of activity."[9] Whenever possible, the child is engaged in an activity, such as rolling a ball. It is most effective to have the child engaged in this activity with the parent. Free field sounds at predetermined distances are introduced while the child is playing. Sounds of mild intensities are given first because some children respond better to faint sounds than they do to loud sounds. The child usually responds by momentarily interrupting the activity in which he is engaged. This type of cessation of activity response is useful with children as young as one year of age. However, the type of activity selected must be suitable for the age level of the particular child. It is obvious to all that this is a simple, inexpensive method of examination, one that can be utilized in any office with a minimum of fancy equipment. It does require much time and patience and does not lend itself to the rush of routine office hours. This method is flexible and can also be used with negativistic or hyperactive children.

There are many elaborate procedures that have been developed which are more objective than the one described here. Some of these other tests are: psychogalvanometry as advocated originally by the Hopkins[1,5] group; electroencephalography as practiced by Marcus and Gibbs[6] in Chicago; and peep show audiometry as originally suggested by Dix and Hallpike[2] and modified by others, such as Guilford and Haug[4] in Houston. All of these methods add to our armamentarium of diagnostic procedures but all have the limitation of the experience and ability of the operator and the expense and difficulty of administering the test.

We have previously mentioned that, besides deafness, there are other causes for lack of response to sound. These conditions are aphasia, psychic or emotional deafness, and mental deficiency. To differentiate these conditions in early life, one must evaluate the child's total behavioral pattern. This pattern can only be discerned through a detailed history and careful clinical observation, in addition to a study of motor performance, mental capacity, and social maturity.

We do not propose that the physician become a proficient practicing clinical psychologist, sociologist, or psychiatrist, but if we are to make sensible suggestions to parents, we must acquaint ourselves with some of the outstanding characteristics of the emotionally disturbed, the aphasic, and mentally deficient child.

So that we may have a basis for comparison, we will first describe some of the characteristics of a child with a true hearing loss.[9,10]

1. Speech development is retarded.
2. The voice has a characteristic tonal quality. The ear monitors tonal quality and the child speaks as he hears.
3. The child does not improvise sound for pleasure, but uses his voice for utilitarian purposes. For example, he does not sing to himself. He will make sounds, however, when he wants food and attention.
4. The child uses his voice projectively, that is, by means of his voice and sounds he projects himself into his environment to attract attention.
5. The deaf child uses gestures to make his wants known, that is, he assumes symbolic behavior which is a form of language.
6. A deaf child responds consistently to those sounds he can hear.
7. A deaf child is unusually sensitive to vibration, movement, and other visual cues.
8. The gait of the deaf child is often characteristic. The child may drag his heels because he doesn't hear himself walk.

9. A deaf child often makes a great deal of noise during mastication because he cannot hear himself chew.
10. The deaf child has poor social rapport; there is much preoccupation with objects and things and little contact in a give and take manner with people.

Some of the characteristics of the child with psychic or emotional deafness are:

1. This child has a history which reveals that he has been considered primarily a behavior problem rather than a problem of hearing impairment.
2. Most have good vocal quality.
3. Frequently the parents give good evidence for hearing. They may make a statement such as "sometimes he seems to hear me." Often children will produce speech, such as "yes" or "no" under stress situations or when they are separated from their parents. We can thus conclude that they have been able to hear within normal limits.
4. Their laughter and gait are usually like those of a normal hearing child.
5. Often, paradoxically, they respond to what may be called pleasant sounds of low intensity but show no response to high intensities even though these may be expected to stimulate pain and fear.

Let us now consider the aphasic child.

1. The aphasic child is most inconsistent in his response to sound.
2. He does not gesture if he is a predominantly receptive type, because he lacks symbolic language.
3. He does not respond objectively with his hearing.
4. He does not respond well to vibrations, movements, or other visual cues.
5. Aphasic children are often attentional problems. They seem to be abnormally preoccupied with one activity.
6. The aphasic child can be trained or conditioned to respond to sounds which he has learned to interpret. For example, an aphasic child can be taught to respond to the noises of removing a cookie from a jar.
7. Psychological test results usually show wide discrepancies between verbal and performance levels. They may also reveal characteristic perceptual disturbances of the brain damaged.

Finally, the symptomatology presented by the mentally deficient child is:

1. He is deficient in curiosity, imagination, attention, and interest.
2. There is a generalized retardation in learning to care for himself.
3. The response to sound is erratic, especially if pure tones are used.
4. Subtle responses to normal speech sounds can often be elicited.
5. Vocalizations are made for pleasure and the quality is like that of children with normal hearing.
6. There are often other evidences of interference with physical development.
7. Mental tests, while not always conclusive, usually reveal marked retardation.

We have stressed the importance of diagnosing hearing impairments and speech retardation at as young an age as possible from the following aspects:

1. Advantages of early training.
2. Methods of hearing testing.
3. Characteristics of the hearing impaired child as compared with the emotionally disturbed, the aphasic, or the mentally retarded child.

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CLASSES FOR APHASICS

HORTENSE BARRY

In October, 1949, the first class for "Children Who Hear But Cannot Speak" was organized in New York City at Junior High School 47, Manhattan under the guidance and dierction of William Calvin Barger, M.D., School Psychiatrist in the Board of Education's Bureau of Child Guidance. There were six children in the initial group, which has since grown to twenty-four. Several more children during the years have been returned to their neighborhood schools, or have been transferred to hard-of-hearing classes at Junior High School 47, when it was felt that a hearing loss constituted the chief problem.

Our preparation for this very specialized area was an on-the-job training based on sound principles of pedagogy and under the guidance of an outstanding psychiatrist. We were, in those early days, not sure that our findings or even our terminologies were scientifically correct.

Because we hope to invoke helpful criticism or suggestion, and to encourage others who may be doing similar work, we here review our experiences. We have used every pertinent text and publication, and have been guided by the principles, methods and devices described, many of which are incorporated in our teaching and in this, our 'life story'.

Because there were no known schools in New York City which recognized the needs of these children, or which were prepared to handle their education, the School for the Deaf and Hard of Hearing was chosen to conduct an experiment in educating them, as it was felt that teachers of the deaf might be best equipped to cope with the speech problems involved. Formerly these children had been placed in classes for the mentally retarded, left to struggle in the regular grades, or had been refused admission altogether. Here then, at last, was a place where they were welcomed, loved, and understood, and where through specialized teaching methods they soon began to show progress, slow but definite progress. We feel that Junior High School 47, Manhattan was a happy choice, since it has been found that many of the techniques and materials used in teaching the young deaf child lend themselves very well to the teaching of the aphasic child.

Although all of the children had some speech difficulty, either absence or impairment of speech, it was soon discovered that this was not the sole handicap but only one of many, and so the group has come to be known as the 'Aphasics'. To understand better the term 'aphasia' and its related disorders, a brief explanation may be helpful.

Aphasia, also known by many other names, literally means loss of speech, but in its broadest sense it has come also to include (for us at least): *alexia,* or difficulty with reading symbols; *agraphia,* or difficulty with writing symbols; *agnosia,* or difficulty in recognition by use of the senses (which would affect number symbols as well as perception of color, size, form); and even *apraxia,* which is motor disturbance or difficulty in performing skilled motor acts. To phrase it as simply as possible, aphasia is a disturbance in ability to handle language symbols, due to a brain lesion, which would be any abnormality, including injury, but excluding psychogenic causes. Such a disturbance could not only affect recognition but also association and thinking. In some types of brain lesions, whether temporary or permanent, behavior as well can be influenced.

There are several types of aphasia: receptive, expressive, conceptual, and global. The receptive aphasic child has trouble understanding language; he sees or hears but cannot understand the meaning of the object seen or the sound heard. This type has been called sensory or auditory aphasia, or word blindness or deafness. The expressive aphasic has difficulty in expressing himself and is the most common type. He has also been labelled the verbal or motor aphasic. The conceptual aphasic, who may have some qualities of each of the others, is unable to formulate concepts. When all language forms are affected to such a degree that it is impossible to fit him into any of the other categories, the child is said to be a global aphasic.

Therefore, since all aphasics have an impairment in understanding the environment in which they live, it is up to us to structure that environment for them; we must help them to understand it.

There are some definite symptoms and reactions that we have found to be fairly indicative both in behavior and in the language areas. These often appear in normal children; it is when they are excessive that we look further. They are sometimes inconsistent, even contradictory, in the child with a brain lesion. No one child has all of the following symptoms. They occur in numerous and varied combinations. Each child presents his own problems of personality and language deficiency, and is a distinct challenge in himself. In behavior we have noticed the following:

1. Mixed laterality: where the child is dominantly neither right nor left sided. The eye is normally included in a dominant side.
2. Delayed responses: a noticeable time lag in responding.
3. Inconsistency: erratic responses to the same stimulus.
4. Distractibility:

    (a) An abnormal fixation to unimportant details while disregarding the essentials. A child may give all his attention to a page number instead of looking at the printed material or the pictures on a page. This seeming difficulty in concentrating or lack of attention is actually extreme attentiveness as far as the child is concerned, but he is giving his whole attention to the unimportant detail.

(b) Figure-ground disturbance: a blurring or inversion of background and foreground, where the main subject may blend with the background or where the background itself may become the focus of attention.

5. Hyper-activity: a forced, undirected response to stimuli. A drive that compels the child to act, to flit from one thing to another, that makes him unable to withstand countless stimuli which the normal child disregards.
6. Perseveration: the persistent repetition or continuance of an activity once begun, especially if the child has experienced success or pleasure.
7. Difficulty in shifting from one activity to another: the inability to start or stop a series.
8. Disinhibition: lack of emotional control, easy laughing or crying which may persist beyond reasonable limits.
9. Catastrophic reaction: extreme helplessness, despair or anxiety experienced when a child is confronted with a task beyond his ability, usually accompanied by intense crying.
10. Persistent repetition of questions over and over again even though they have been carefully answered.
11. Intolerance of discipline and extreme irritability.
12. Meticulosity: an exactitude demanded by the child who must have everything "just so", usually to relieve a lack of orderliness in his surroundings caused by fluctuation in his own thinking.
13. Aimless, random movements: pawing the air, waving the arms, etc. These may result from tensions.
14. Abnormal clumsiness: general lack of coordination.
15. Aggressive, antisocial, or uncontrolled behavior.
16. Quiet, daydreaming, phlegmatic behavior.
17. Short attention span.

Is it any wonder that some of these children are the so-called dreamers, deviates, and behavior problems? However, it is the presence of these very characteristics, backed up by neurological examination and testing, that leads us to believe that these are typical children with some brain lesion.

In conjunction with the above symptoms, those to be expected in speech and other language areas are:

Speech

1. No sounds.
2. Distorted sounds: either vowel or consonant.
3. Repetitive sounds: stumbling, hesitating, or blocked speech.
4. Telegraphic speech.
5. Slow, labored speech.
6. Meaningless repetition: ecolalia.
7. Uncontrolled flow of speech.
8. Transposition of syllables (aminal for animal).
9. Reversals of syllables (Jofus for Joseph).

LANGUAGE

1. Jumbled language: disturbed syntax (mother, me to the store, for Mother and I went to the store).
2. Word finding difficulty: when the child just cannot find the word he wants. (We have all experienced having a word on the "tip of our tongues".) This often leads to —
3. Circumlocution: talking around a word, telling all about it without being able to say it. eg.: It's round like a ball. It's red. We eat it. Etc.
4. Coining words.
5. Incoherent, inarticulate jargon.
6. Perseveration: continued use of a verbal or written response when it is no longer appropriate. A child may read or write the word "bed" correctly but when confronted with another more difficult word may keep repeating the successful response "bed".
7. Inability to separate a whole into parts or to combine parts into a meaningful whole. A child may recognize the word "bus" as a whole but is at a loss if expected to combine b——us into a word. The opposite holds true with some children.

READING

1. Letter substitutions:
   (a) inversions (v for a).
   (b) reversals (b for d).
   (c) transpositions (ma for am).
   (d) similar letters (h for n).
   (e) random substitutions (r for m).
2. Word substitutions (was for saw).
3. Distracted reading: skipping, jumping.
4. Slow recognition of words.
5. Omission of words, phrases, sentences.

WRITING

1. Inability to form letters correctly because of visuomotor disturbance.
2. Difficulty in staying on or between lines.
3. Difficulty in judging how long or tall a letter is.
4. Disturbance in spatial relationships.

Many of these difficulties are due to perceptual disturbances: visual, auditory, spatial, or tactual. Our perceptions are the activities of the mind that occur between sensation and thought. They are the means by which we organize and understand the world around us. It is through the action of the brain that a sensation gains meaning and becomes a perception, so that naturally, when there is some lesion of the brain, perceptions are disturbed and the world is disorganized, perhaps meaningless.

Our ways of perceiving are believed to be universal. One basic characteristic is that a perception is made of a whole, that it happens immediately and "all at once, with nothing first". A familiar picture is recognized at a glance without looking at details; familiar objects are perceived as unified wholes even though only a part may be seen. In normal perception a whole is seen as a foreground figure against a background. For example, we select as foreground the friend to whom we are talking, disregarding all else as background. These characteristics of perception do not hold true with an organism whose nervous system has some lesion impairing it. And so, our children may not perceive, may not see, hear, or feel as we do. Because their perceptions are disturbed, we must organize and structure their environment to help them understand it. Because the brain may have lesions, either anatomical or physiological, we attempt to break through these lesions by new pathways, and to use suitable techniques so as to utilize the unaffected parts of the brain whose resources may substitute or compensate for the impaired part. These are the reserves from which we draw in education.

It is obvious that there can be no single set of standards in teaching these children, but we have found the following suggestions in a classroom situation most helpful.

1. Limit the number of children (5 or 6 would be ideal).
2. Work in a quiet room with a minimum of distractions.
3. Keep in mind always that these are confused children; avoid further confusion; clarify and simplify wherever possible.
4. Try to find the level at which the child operates best, and go on from there.
5. Do intensive speech work, according to each child's needs.
6. Present only important things and in a crystal clear manner.
7. Use simple materials, free from details. Cut away or cover unessentials.
8. Present one thing at a time.
9. Wait with patience for delayed responses.
10. Use a multiple approach: sight, hearing, touch, taste, smell, kinesthetic.
11. Work with each child individually as much as possible, screening out distractions, until he can work independently. (If necessary, a black or dark surfaced table, screens, to isolate child may help).
12. Create situations in which the child may experience success.
13. Use a wealth of concrete material for beginning number work; include many manipulative materials that will tend to slow down the hyperactive child. Placing sticks in a box or pegs in a board when counting will keep the child from rushing headlong into confusion or error.
14. Have many lessons involving cutting, sorting, pasting, etc., to train perceptions.
15. Use the ideas of association and differentiation for perception of size, color, shape, texture.
16. Train spatial relationships by the use of form boards, puzzles, matching forms to outlines, copying from patterns, etc.
17. Use color cues constantly as color perception develops before form. In writing a word make the letters in different colors; in number work use cards with one blue dot, two green dots, etc. Black may later be substituted until no cues are needed.
18. Bring foreground figures strongly into the foreground by outlining them in heavy black lines or by blocking out the background entirely.

19. Bring separate parts of a whole sharply into focus by encircling them or placing them in a box.
20. For perseverative children, quietly substitute another activity until they are ready to accept the task at hand.
21. Use Barger mirror techniques experimentally for writing and reading difficulties.
22. In beginning writing have child trace, then copy directional lines to train visuomotor perception. Using different colors and lines will also help counteract distractibility.
23. Use specially constructed paper for writing, with lines of different colors to help size the letters correctly.
24. Encourage children to articulate the sound of the letter as they write.
25. Encourage finger pointing and prolonged use of a marker in reading. This prevents hurrying and brings the word being read to the foreground.
26. Try many of the methods used in teaching the young deaf child, such as: repetition (use with caution for perseverative children), straight language, calendar and news work, matching of objects, pictures, printed forms, lip reading devices (used here for recognition rather than for lip reading), etc.

We find that as our children experience the warmth of success with these methods, all of which are used on an individual basis, the disturbances lessen. We try to control the child's behavior by structuring situations and in so doing we improve learning conditions. As the disturbances diminish, the special methods are removed and eventually the child is able to function under normal conditions, at his own rate.

And so, by using these principles, by trying to find each child's difficulties, by helping him to solve them and by seeking ever better devices and methods, all of the teachers of the Aphasic groups at Junior High School 47, Manhattan have achieved some measure of success, and sincerely hope to have an even better understanding of the problem of Aphasia in the future.

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American Speech and Hearing Association, Wayne University, Detroit, Michigan
Cleveland Hearing and Speech Center, Western Reserve University, Cleveland, Ohio
American Speech Correction Association, Box 3066, Ohio State University, Columbus, Ohio
Speech Association of America, Dept. of Speech, University of Illinois, Urbana, Illinois
Western Speech Association, University of Southern California, Los Angeles 7, California
National Society for Crippled Children & Adults, Inc., 11 South La Salle St., Chicago 3, Illinois

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SECTION IV

CHAPTER VI

THE ORTHOPEDICALLY HANDICAPPED

THE ORTHOPEDICALLY HANDICAPPED, BY FRANCES G. KOENIG

DIAGNOSIS OF CRIPPLED CHILDREN

THE CARE AND TREATMENT OF CRIPPLED CHILDREN IN THE UNITED STATES, BY A. R. SHANDS, JR.

ORTHOPEDIC PROBLEMS IN CHILDREN, BY EDWARD F. RABE

PARENTS OF THE ORTHOPEDICALLY HANDICAPPED CHILD, BY E. LOUISE WARE

STANDARDS RECOMMENDED FOR THE HOSPITAL CARE OF CHILDREN WITH ORTHOPEDIC HANDICAPS

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE ORTHOPEDICALLY HANDICAPPED

FRANCES G. KOENIG

Special education has grown considerably from its inception at the beginning of the twentieth century to the present. One needs only to look at the White House Conferences of 1930 and 1950 to realize the tremendous changes that have taken place in services offered to children from pre-school nursery age to the secondary school level in those twenty years. Yet the problem is not solved. There are goals which call for accomplishment and indicate that increased services are not only desirable but also necessary in certain areas of endeavor. However, it is only a few short years in the history of man since he has not expressed primitive fears, ridicule, neglect or sentimental physical care toward the physically handicapped and has only in the past fifty years begun to offer educational procedure commensurate with the limitations imposed upon orthopedically handicapped children.

SPECIAL DEFINITIONS

Who is the orthopedically handicapped child? For purposes of this chapter, it is the White House Conference report of 1931 that gives a sensible working definition. It is there we find —

> The crippled child in the orthopedic sense is a child that has a defect which caused a deformity or an interference with normal functioning of the bones, muscles, or joints. His condition may be congenital, or it may be due to disease or accident. It may be aggravated by disease, by neglect or by ignorance.

In New York City, Henry C. Wright stated that

> A crippled child is one whose activity is, or due to a progressive disease may become, so far restricted by loss, defect, or deformity of bone or muscle, as to reduce his normal capacity for education or self-support.

The child with cardiopathic disorders, cerebral palsy, muscular dystrophy or other special health problem will not be considered, since other sections of this volume are concerned with those areas of special education.

For purposes of this chapter, then, the orthopedically handicapped are those who, either developmentally or through accident or disease, are limited or disabled in the normal and full use of bones, muscles, or joints.

SPECIAL LEGISLATION

Working definitions are usually decided upon by each state either legally or administratively. In earlier years they were wholly centered about orthopedic care and correction. In 1935, under the Social Security Act, vocational aid as well as medical care was included. This was obtained under the Maternal and Child Welfare section of the Act. In 1939, under amendment to the Act, all states may aid children under twenty-one years of age who have orthopedic defects or who require plastic surgery. About fifty per cent of the states include children with rheumatic fever, since this is often defined as a crippling condition, and children with cerebral palsy; some hard of hearing and epilepsy cases may also be included. Most of the services are state controlled, and many major cities have their own services and programs. Other states are limited in the scope of their services because of insufficient funds and a lack of trained personnel.

It has been the hope that, under Title V, Part 2, of the Social Security Act of 1935, grants to the states of the funds appropriated have enabled them to

> extend and improve (especially in rural areas) services for locating crippling children, and for providing medical, surgical, corrective, and other services and care, and facilities for diagnosis, hospitalization and aftercare, for children who are crippled or who are suffering from conditions which lead to crippling. . . .

State plans must provide for cooperation with medical, health, nursing and welfare organizations and with the state vocational rehabilitation agencies. The Children's Bureau of the Department of Health, Education, and Welfare is responsible for the administration of Federal funds to the forty-eight states and the territories, including the District of Columbia, Alaska, Puerto Rico and Hawaii. All have vocational rehabilitation programs through their state departments of education.

In 1953, $12,245,000 was apportioned to the state crippled children's agencies in such a way so that lower per capita income states receive proportionately a larger share of federal funds; one half the sum is matched by state funds. States are required to submit an annual budget and plan of programming and proposed use of funds. Many states have crippled children's clinics in different parts of the states at varying times. Medical services are paid for by the state agency on a fee or on a part-time salary basis; hospital and convalescent care is also provided by the state. The public health nurse, medical social worker, physical therapist, nutritionist and speech therapist serve as needed. Dental care is provided. Teachers are paid for either through private or public funds and through city systems or state aid.

INCIDENCE

Although children with orthopedic conditions receive more care than other areas of handicapping conditions, there is a steady gain in the past few years by more states of acceptance of other conditions for special services. In 1951,[1] 228,873 children received physical services under the state crippled children's program.

Congenital malformations	48,022	21.0%
Bones and organs of movements	45,739	20.0%
Poliomyelitis	30,297	13.2%
Cerebral Palsy	20,150	8.8%
Ear Conditions	13,084	5.7%
Burns and Accidents	11,931	5.2%
Rheumatic Fever	8,753	3.8%
Eye Conditions	6,675	2.9%
Epilepsy and other diseases of the nervous system	3,365	1.5%

The remainder includes tuberculosis of bones and joints, birth injuries and miscellaneous conditions.

In a release of January 1952 of the United States Office of Education under the Federal Security Agency there were estimates of five million school age exceptional children in the nation; however, not more than fifteen per cent receive special help. Many of these children reside in rural areas. A 1953 estimate shows that about forty-two per cent of the school-age population live in rural areas where problems of pupil transportation and school organization generally make impractical the types of services needed by all exceptional children.

It is also estimated that, nation-wide, accidents are a leading cause of death in childhood; they kill 12,000 children annually and permanently cripple 48,000 yearly. This toll exceeds the combined mortality of pneumonia, congenital defects, cancer, tuberculosis, leukemia and heart disease victims among children.

Sheldon Binn, a staff writer of the New York City *World-Telegram-Sun*, on Monday, April 25, 1955, stated the following figures gathered from the New York City Health Department as indicative of incidence in that city in 1953:

Poliomyelitis - 503 children - 1 to 14 years of age - 12 death
200 no paralysis
150 mild paralysis (recovered)
140 permanent disability
Pneumonia and influenza - 211 deaths - 1 to 14 year group
Cancer - 183 deaths
Congenital malformations (including heart) - 115 deaths
Tuberculosis - 38 died
Heart Disease - 17 deaths
Kidney complications - 15 deaths
Bronchitis - 14 died
Accidents - 229 deaths
Traffic accident - 86 killed - 23 under 4 years of age;
44 five to ten years old;
19 eleven to sixteen years old
Caused by running in the road; crossing not at a crossing; playing games in the road; bicycle riding; roller skating; dashing out from behind parked cars.
Other causes - 312 deaths

It should be observed that poliomyelitis is the 9th worst killer; only 1% of all deaths in the 1 to 14 year age group is the incidence. With the anti-

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(1) Arthur J. Lesser, M.D. — "State Programs for the Care of Crippled Children"; *Exceptional Children*, Vol. 20; no. 3 - p. 133 - Dec. 1933.

poliomyelitis vaccine, developed by Dr. Jonas Salk, beginning in May, 1955 throughout the country, it is hoped that this dread disease may in the near future be under control and eventually completely wiped out even as smallpox has been.

Among the orthopedically handicapped, boys outnumber girls two to one. In more than 50% of cases, the handicap is due to disease. Fewer than 35% are congenital defects. Nearly 20% are caused by accidents. More than 33% have impairments of arms or legs or both. Five per cent are amputees. Thirty-eight per cent under twenty-one years of age are referred to state rehabilitation agencies by schools; others by doctors, health or crippled children agencies, hospitals, welfare agencies, and state employment services; only 6% go on their own initiative. When accepted for employment, about 93% are unemployed and 87% are dependent upon their families.

Increased funds to the states under a 1954 amendment to federal legislation will assist more disabled boys and girls to prepare themselves, through expanded programs of vocational rehabilitation, for physical restoration, medical examinations, counseling, vocational training and job placement and follow-up, to take their places in the economic structure of our nation. The expectations are that by 1959, 40,000 youths, fifteen to twenty-one years of age, will be rehabilitated each year under this expansion. This is almost four times the previously rehabilitated annually. It is hoped that a total of 200,00 disabled young people will be rehabilitated.

It appears to be a primary factor in life to give recognition to each person as an individual in his own right. Secondly, we must learn to accept the deviation from the average in its proper place in the total pattern of the individual. Thirdly, even as we claim opportunities to all in our American democracy, so must we give these individuals their chance for a place in our scheme of living. It is true that the science of medicine and public health has moved forward considerably since the first cave dweller had a headache, but much remains to be done toward the realization of the application of such knowledge for the orthopedically handicapped.

Special Historic Aspects

In primitive societies children born crippled were doomed to die young. No cognizance was taken of the condition. Some crude form of health practice was manifested in the medicine man's cure of an illness or the clotting of a wound. His lack of knowledge and his fear drove him to escape from this thing which he did not understand or to remove the culprit from his sight.

The ancient Hebrew culture was the first not to turn away or expose to death those who were not physically perfect. The village or town would take care of the crippled or blind. There were physicians and pharmacists in Jerusalem who practiced simple surgery and dressed wounds with wines, oils and balsam, but curing a person was largely a matter of appealing to Jehovah who could both inflict disease and cure the sick.

In Sparta, the social and political conditions made it seem necessary to produce a state of hardy warriors and patriotic citizens; strength, courage and obedience to the law were held in the highest esteem. An infant was inspected by a council of elders who decided whether he was strong enough to live.

In very early days, he was thrown over a precipice of Mount Taygetus if sickly or deformed; later on he was left to die in some uninhabited spot.

In more liberal Athens, on the other hand, the father would expose his malformed or sickly infant in the hope that it would die quickly so that this shame upon his house would not remain to taunt him. All types of disfiguring accidents were guarded against in the gymnasium in Athens, in contrast to any means even to maiming that person for life, of overcoming one's opponent in the Spartan games.

Under later Roman rule, most children who suffered from bone deformities were thrown into the Tiber River to die, those permitted to grow up were forced into the Temple of Mercy as beggars or sold into slavery.

During the Middle Ages, the crippled were looked upon with suspicion, ridicule or pity. Often they were used as court jesters, taking the brunt of opprobrium throughout their miserable lives. The first social awakening in the dark period of history came when Pope Gregory issued an edict in 590 A.D. permitting the raising of funds to aid the crippled. Pity was the underlying factor operating then.

Yet during the Renaissance there is found in the writings of Martin Luther a statement that it was "well to destroy cripples". His point of view disclosed the superstition rampant at that time, the belief that the crippled were evil or marked by Satan, or were witches.

In the sixteenth century the first law in Germany that condemned the ridicule of the crippled as a social crime was established. In England, under the rule of Henry VIII, a law was promulgated which gave to a commission the right to collect alms for the poor, including the right to collect for cripples. The English Poor Laws, in 1535, permitted crippled children, from five to fourteen years of age, to be apprenticed so that they could learn a craft and become self-supporting.

Not until 1722 did hospital care come to the crippled in Germany. The Heimschule was established for the purpose of training such children for vocations. Other countries then followed with medical care, home teaching of orthopedically handicapped children, and nursing training, not only for acute illness and operations, but also for the correction of orthopedic handicaps.

In the United States, the movement began in 1838 and culminated toward the close of the century with hospital care and, through the aid of private philanthropic organizations, an attempt to rehabilitate the orthopedically handicapped. In 1897 Minnesota passed a law stating that hospitals must have an educational program and staff for the schooling of crippled children. In New York City, the Ethical Culture Society was instrumental in opening the first New York State Reconstruction Home at Haverstraw, now known as the New York State Rehabilitation Hospital.

England followed the example of the United States with outdoor schools for nature study, manual training and gardening as aids in improving the physical condition of the children, and preparation for such employment as might be obtained in that country for those children.

Canada, too, followed, with the Hospital for Sick Children on Toronto Island for tuberculous children, a Preventorium and outdoor school at Hamilton, and, in 1913 the first Forest School in Victoria Park, Toronto. Poor children came to this latter as well as orthopedically handicapped children.

In the United States, however, programs lagged until 1933, when the White House Conference on Child Health and Protection was widely publicized. Public consciousness was not yet aroused sufficiently until, after the Social Security Act of 1935, and the Amendments in 1939, there came a strong impetus from the various states calling for aid. After World War II, with the many disabled soldiers, there came another challenge and a renewed emphasis on the employment of those who are disabled, a vigorous campaign for good general health, a growing awareness of the needs of other nations, a development of the International Children's Emergency Fund under the United Nations, and a growth of the movement against all physical ills.

Special Classification of Orthopedic Types

Orthopedic conditions, or crippling conditions, as they have been termed through many years, in general refer to deviation of the bones, muscles or joints which cause abnormal functioning. For purpose of this chapter cerebral palsy, muscular dystrophy and cardiopathic conditions are excluded. The following are classified:

1. **Congenital and hereditary anomalies**: clubfoot; clubhand; polydactylism; syndactylism; torticollis; spina bifida; cretinism; microcephalus; hydrocephalus; cleft palate and harelip; congenital hip dislocations; congenital amputations; Fredreich's ataxia; coxa vara and coxa valga; congenital syphilis.
2. **Birth injuries** (other than cerebral palsy): Erb's palsy; bone fractures.
3. **Infections**: bone and joint tuberculosis; osteomyelitis; arthritis; poliomyelitis.
4. **Traumatic conditions or injuries**: amputations; burn contractions; fractures.
5. **Tumors**: bone tumors; bone cysts.
6. **Miscellaneous conditions**: curvatures of the spine; postural foot conditions; rickets; Perthes' disease.

It is the concern of those who work with individuals who differ congenitally to understand the human being as he develops from conception to birth. Apparently some anomalies are due to hereditary influences as found in the genes; others are due to the damage to the embryo; and still others are caused by changes in the fetal environment. Endocrine and hormone disturbances and even slight chemical changes can induce malformations. It is known that a diabetic mother is more likely to give birth to a malformed child than a non-diabetic mother and that older mothers will more often produce a malformed child than a younger one. Rubella (German measles), in the first trimester of pregnancy, has been found to cause eye abnormalities and heart disabilities in the infant.

Congenital Anomalies

Amputations: born with one arm; one leg; no arms or legs; part of arm or leg bones missing.

Cleft palate and harelip: roof of mouth may be split part way or full length; nasal cavity opens into mouth; faulty union of two sides of lip and mouth.

Clubfoot: congenital talipes — child born with one or both feet deformed; usually where toes and feet are turned inward; sometimes outward; others with heels down and toes upward; often accompanied by webbed toes or fingers, absence of toes or fingers. harelip; frequent in cases of spina bifida (spinal column fails to unite).

Clubhand: rarer than clubfoot; often absence of much bone.

Coxa valga: angle of neck of femur is exaggerated; lame; awkward gait.

Coxa vara: angle of neck of femur is diminished; lame; awkward gait; cannot spread legs apart; hip joint deformed.

Cretinism: dwarfing of the body due to absence of thyroid gland; sometimes the mouth is held open, tongue protudes, nose is stubby; skin is dry or wrinkled; eyes tilt toward nose; nails thickened; hair is brittle and thin; intelligence is very greatly affected.

Friedreich's ataxia: slow, progressive disease of the spinal cord; weak gait; feet become contracted; possibly hereditary.

Hip dislocation: one or both hips with limp or waddling gait; more frequent in girls than in boys.

Hydrocephalus: abnormally large head due to too much fluid in the brain; life span is short; mental deficiency is present as enlargement progresses.

Microcephalus: unnatural smallness of the head due to imperfect development; usually mentally deficient.

Polydactylism: supernumerary fingers; six or seven toes or fingers on one foot or hand.

Spina bifida: portion of spinal column is left open and membranes and fluid of spinal cord form a sac of tumor in the midline of the back.

Syndactylism: webbed fingers or toes; common; union between sometimes extends to tip ends.

Syphilis: congenital deformity of bones and joints; paralysis; stunted growth; often mentally deficient; some hereditary quality.

Torticollis: wry-neck; deformity of the neck causing the head to lean toward the shoulder on the affected and the chin toward the opposite side.

Birth Injuries (other than cerebral palsy)

Erb's palsy: birth palsy or obstetric palsy; head and shoulders are pressed or pulled upon at birth; injury to large nerves to the arm; whole arms is rotated inward; palm cannot be turned upward because of contraction in forearm muscles and arm cannot be raised up to shoulder level.

Fragilitas ossium: bones become brittle and fracture easily.

Infections

Hip disease: tuberculosis of the round head of the thigh bone at the hip; head of bone decays and socket is destroyed; stiffness of joints.

Osteomyelitis: bone felon; inflammation in and around bone marrow; sudden onset in childhood usually; destruction of shaft bone; staphylococcus or streptococcus bacterium; common site is lower end of thigh bone or upper end of leg bone; can attack any bone.

Poliomyelitis: viral infection; portal of entry through gastrointestinal tract; anterior horn cells of spinal cord and motor nuclei of brain are involved; may be non-paralytic or paralytic; all age groups are affected.

Pott's disease: tuberculosis of the spine; vartebrae are destroyed; causes angulation of the spine; hunchback; common between first and tenth years of life; acute infectious disease as measles, scarlet fever precede the symptoms.

Still's disease: inflammatory arthritis severely involving multiple joints; permanent damage and deformity occur.

Tuberculosis of the knee and other joints: increase in joint fluid; painful; prevention of motion is essential; germs lodge in growing portion of bone (epiphysis) and involve joints.

Traumatic Conditions or Injuries

Amputation: removal of bone after accident or injury.

Burn contractions: when full thickness of skin is burned; scar formation occurs; as area contracts and heals, the joint bends and cannot be forced straight unless splinted to prevent contractures.

Fractures: break in continuity of bone; may occur in or near joints or long bones, hip or spine, clavicle, jaw, or pelvis.

Tumors

Exostosis: bone tumor; simple growth on bone; a sort of spur; removal is simple.

Osteitis fibrosa cystica: bone cyst; sac or cavity filled with fluid material; complete dissection is indicated.

Miscellaneous Conditions

Flatfeet: pronated feet; weak arches; ankles turn easily; sometimes walk pigeon-toed as natural protection against arch strain.

Kyphosis: convexity backward of the spine.

Lordosis: hollow spine; convexity forward of the spine.

Perthes' disease: head of femur at the hip joint appears flattened and distorted; cause is unknown; little or no limitation of motion; limp and pain.

Rickets: softening of the bones; nutrition causing distortion of bones and joints; deformity, such as bowlegs, knock-knees, flatfeet or spinal curvature; chest distorted, protruding abdomen.

Scoliosis: twisting of spine and tilting of shoulders and hips.

Some Special Characteristics of the Orthopedically Handicapped

Some data is available concerning attitudes toward physically exceptional persons. On the whole, a mildly favorable attitude on the part of the general public is a positive sign. Yet a rather large minority overtly respond negatively, even today, to the orthopedically handicapped. Investigation is necessary to discover the deeper covert and possible hostile attitudes underlying this response.

Parents tend to be overprotective rather than overtly rejecting their disabled children. Often they press for achievements and accomplishments far beyond the ability of the child. Much has also been said about the possibility of guilt feelings stemming from hostile attitudes of parents and the subsequent oversolicitousness in order to alleviate this guilt.

Much has been asked about the behavior and personality of persons with orthopedic impairments, and many studies have been made, both with groups and with individuals.

The handicapped individual apparently has no set pattern of attitudes concerning his own disability. It would appear that his attitudes arise from his personality configuration as related to himself, his associates, and the social situation in which he finds himself. Studies of children with poliomyelitis have shown that there is no particular personality change as a sequel to this disability nor is susceptibility to it based on personality selection. On the other hand, it has been observed that individuals with active tuberculosis react, not with a kind of euphoric tone while under treatment, but rather with apprehension and anxiety, but they return to their original personalities upon arresting the disease.

Learning ability varies with the intelligence and with the possible damage to the brain. For example, the microcephalic child is probably best trained in a residential school to do whatever he can for himself; there is so much mental deficiency present that he is not educable in extra-mural classes. Infections of the bone or joint, injuries to parts of the body musculature other than the brain, and the miscellaneous conditions resulting from faulty bone or joint position have no effect on the intelligence of the individual. It remains what it had been prior to the physical impairment. His limitations are physical rather than mental unless he had a low potential to begin with.

It is known that many orthopedically impaired children have multiple handicaps. There may be children with skeletal deformities and poor vision or hearing; others may be mentally retarded or defective; still others may have personality deviations or emotional disturbances accompanying the orthopedic defect; and some may have speech defects either physical or functional in origin.

It is also a fact that many such children are retarded from one to three years in school achievement. Claims have been made that this results from long hospital placement, convalescent care, and lightened school programs recommended by the physician. Other factors seem to be lack of experiencing the daily activities other children enter into, overprotection and care on the part of parents, and possible withdrawal from groups as protection against feelings of incompetency, frustration, and a sense of being different from other children.

Special Housing

Special provisions should be made for orthopedically handicapped children wherever they can best be served. There are children whose disability is so minor that they can partake in all activities of the regular school or class. The child with flat feet or rickets can successfully be placed in the regular classroom. However, there are children and young people of secondary school age who are not able to stand the strenuous play and other recreational activities of the average child and who are in need of additional physical care. The factors of safety and of physical limitations are ever-present. These children cannot fully participate in the social, educational and pre-vocational aspects of the regular school.

These children may best be served in a hospital for a period of time, in a convalescent home, in a residential school, at home, in a special day school, or in a special unit in a regular school building. All special education facilities, geared to the particular needs of such children, should be supplied.

Many hospitals have special teachers on their staffs or appointed by local boards of education. They go to the bedside of a child who cannot yet be moved, or to a group of children whose beds are brought together. These teachers carry with them the equipment and books required for those children. Often this is the highlight of the day's activities. Children already in wheel chairs or ambulatory go to the classroom in the hospital; this more nearly approximates a regular school situation.

Convalescent homes and sanatoria are on the way to coming into their own as a necessary phase to the proper growth and development of orthopedically exceptional children. They generally care for such children for periods of varying length of stay, from several weeks, to months, to about a year. Here, too, the medical, dental, teaching and other personnel are important factors in the total picture of returning the child to as normal a functioning as possible. If indicated, the child may for a short span be taught at his bedside; later, he attends the classroom best suited to his age, ability and achievement level. There are usually several classrooms in convalescent homes with standard equipment and routines.

Institutions, such as the residential or day school types, though on the wane as centers of education, still have their place in the kinds of services offered to the orthopedic child. There are children who, because of ignorance or neglect, because of loss of parents, or because of emotional needs, are best schooled in such installations. The extreme mental retardates with congenital malformations of the body appear better served too. However, as soon as feasible, children are returned to their own homes, towns and schools; the special facilities offered are temporary and are for the express purpose of greater rehabilitation. The child, for example, who is sent to Warm Springs for treatment of poliomyelitis, returns as soon as possible to his own environment.

Some special schools are available in many cities of our country. Here they utilize all types of special equipment needed for many of the physically handicapped. They often enroll the blind, the partially sighted, the deaf, hard-of-hearing, as well as the cardiopathic, injured and orthopedic child.

The vast majority of these children are housed and educated in their own home towns and communities in special classes set up in regular public school buildings. Equipment, transportation, lower pupil-teacher ratios, and special programming are vital to their special needs and are met on an individual basis.

There are also private schools which care for orthopedically handicapped children. They, too, have the equipment necessary for them.

Special Services

Flexibility of approach must be ever-present on the part of all who work with these children so that they will guide them toward total security and toward the utilization of their potential to the utmost. The conference method, or what is commonly termed the 'team' approach, can best accomplish this purpose since it is all-inclusive. The teacher, physician, therapist, all have a role to play in achieving an effective program.

In many areas of our country, medical services for orthopedically handicapped children are available in the school building or nearby clinics. There is close cooperation between school medical and health authorities and private physicians; there is nursing service which assists in the decision as to whether these children would benefit from special care. The health and welfare agencies of the community, both private and public, should also be called upon for their valuable contribution to these children.

The medical aspects of a program center around the recommendations made by the child's physician. He suggests the necessary limitations of activity in the physical education program. The teacher modifies it with adaptations of sports, games and dances. Time is often taken out of classroom work so that the child can go to a clinic or hospital for medical, surgical or physiotherapeutic treatment. On his return to class he is given an individualized program by the teacher who plans for his eventual functioning at his optimum.

It must be remembered that diagnosis can only be made by the physician and by the dentist. Insofar as eligibility and class placement are concerned, the board of education usually has a division or bureau for the education of the physically handicapped and the superintendent of schools as final authorities. Both health and educational recommendations are carried out locally.

Various agencies, including social service and vocational rehabilitation divisions of the various states, serve these children through continued care if required, and through follow-up for at least one year after the student leaves high school. The state rehabilitation divisions may also offer prosthetic devices, eye glasses, cosmetic correction, or other extra assistance.

The child limited in his locomotion should attend a classroom on the ground or street level of the school building; its heating, lighting, ventilation, and colors of the walls should follow the best known standards. For example, there has recently come into use green blackboard and yellow chalk because these colors are more restful to the eye and tend to eliminate glare. Ramps, wheel chairs, crutches, elevators (if possible), and wide doorways are requirement for children with orthopedic disabilities. The classroom should be equipped with wash basins, large wardrobes, recessed radiation, movable furniture and composition floors for safety and for the elimination of possible hazards to the bones, joints, or muscles of these children.

The need for a special program with extra rest hours on a cot and blanket in a quiet, restful room ideally calls for a second room set aside for this purpose. A victrola with 'sleepy time' music is a nice addition to pictures, toys, pleasant curtains and good window shades. It must be remembered that space is necessary to store wheel chairs, canes, crutches, and that toilet facilities should be in easy access of the room.

Extra nourishment during morning and afternoon sessions, such as a sandwich and milk, is important, except for the obese child who may be in need of a special diet. Hot school lunches, usually supervised by the teacher of the special class, help the child learn correct health practices and give him the socialization practice he so frequently needs.

The gymnasium, roof (if there is a play area), and playground of the school should be made available to the orthopedic child, if there are no safety hazards. He should partake in all assemblies, exhibits, and other school functions provided that halls and stairs are safe, that railings are sufficient for his use, and that he is not exposed to the dangers of bruises and falls.

If need be, transportation by special car, station wagon or school bus should be arranged to facilitate easy access to the school and to the various treatment centers. Seating and other furniture can be built, purchased or revamped to accommodate crutches, braces, and canes, and wide enough space between desks, tables and bookcases for free motion should be planned.

Special visual aids, such as enlarged type for those children with visual handicaps, special auditory aids for those with deficient hearing, and special equipment for those requiring assistance in better speech, are also necessities in the special classroom.

SPECIAL TEACHERS

Trained teachers, with specified hours in special education practices in the graduate schools of colleges, are most desirable both in the educational as well as in the psychological factors involved. It is only wise to assume that the child with an orthopedic disability will remain in the special class, hospital, convalescent home or on home instruction only so long as his physical condition warrants such services and that these will be carried out upon the recommendation of the physician. It would be well, then, for him to remain with the same teacher while in that school situation.

When the child is at home, either for a short period or longer duration, the utilization of the home-school telephone and special televised programs of instruction are of great value for him in the continuation of his learning and his sense of belonging to the local school serving him. The home instruction teacher will be a bond between him and his peers and classroom teacher. In hospitals and convalescent homes, specially trained teachers work with these children and young people (as in a high school program) and help maintain the educational goals and achievement so that upon return to school they will have accomplished as much as is feasible for them.

The educational goals are identical for those with physical handicaps as for those who are normal. The major stress is laid on good health practices, on attaining as much of self-help status as possible, and on realistically planning pre-vocational training. Socially, too, the goals are the same as for other children, with the added requirement that the teacher of the orthopedically handicapped child be well informed as to the limitations in regard to each individual case.

It must be noted that the curriculum is the same as that of normal children except in the cases of the mentally retarded; here it is similar to the programs set up for such children. Additional learning situations are offered in the physical health area of the curriculum, and much more individual teaching and smaller working groups are advisable so that each child will function from his own base line of achievement. If it can be arranged, a double set of books should be made available so that one set may be kept at home for study and the other used in school.

Special Guidance Counselors

If there is an educational or vocational guidance counselor attached to the elementary or high school, he should be made aware of the need for a thorough knowledge of the skills and training, interests and abilities, special physical and mental limitations of each orthopedic child and should be trained in the psychology of the physically handicapped. He should be available at all times to discuss and direct these children in terms of their physical and mental equipment. He should visit the child's home, hospital or convalescent home and follow his progress there as well as in his day school. It is advisable for him to meet with the parents and offer realistic counseling concerning jobs and the cost of training in relation to the socio-economic status of the family, and explain these factors not only to the parents but also to the child. He should be able to appraise records and analyze opportunities for the orthopedically handicapped through federal, state and community services, publications, tests, interpretations of results, placement bureaus. If the young graduate is successful, he can then feel there is a likelihood for good personal and social adjustment.

He can invite representatives of various industries to discuss possibilities of employment with these students. Where this is not possible, he should assist the student in placing him in a sheltered workshop situation. Publicity in industrial and commercial establishments is a very important phase of his work so that these young people can be made known and proved to be capable workers. Cooperative training programs can be utilized for those students who show ability and whose general health status is good. On-the-job training is a fine method in aiding these young people in becoming self-sustaining members of their communities. If necessary, transportation to and from the job can be provided by interested community agencies.

SPECIAL THERAPIES

Some children are in need of even further care. Where one or more of the therapies might be indicated, services in these aspects should be instituted as soon as a diagnosis has been made. Psychotherapy, for example, is called for only when the child has such emotional problems that they cannot be resolved except by a psychologist or psychiatrist specially trained in this phase of psychological service. In adolescence or where cosmetic deformity (as in harelip or accident) is marked, this may be a patent requirement. Occasionally, play therapy is indicated for young children.

Speech therapy should be offered only by an accredited speech pathologist or speech teacher assigned to the school. Sometimes it is wise to recommend special speech training in a clinic.

Physical and occupational therapy are most often the province of the hospital, convalescent home, clinic, or treatment center, except in special schools which house the necessary equipment and have the therapists on their staffs.

Drug or medical therapy may only be administered on a physician's prescription.

Thus it can again be noted that there are many in the 'team' and that all adjustments must be made in line with individual needs and the necessity for modified programs in educational planning.

SPECIAL PROBLEMS

All facilities, hospitals, clinics, schools, and the like, are the first avenue toward the eventual rehabilitation and well-being of the orthopedically exceptional child. Architects, custodial help, lunchroom workers, matrons, and drivers of cars and buses are necessary to a good working program.

Adaptations of the curriculum to the limitations imposed upon these children are a priori factors to be devised.

Parent counseling in the physical care and health needs, both mental and emotional, it vital to the security of their orthopedically handicapped child as well as to his normal siblings.

The orthopedic child must be made aware of his limitations as well as his abilities and be given assistance in leisure-time activities both when alone and in groups.

Teachers of regular classes should be oriented toward the needs of children with mild orthopedic conditions so that they can best serve them.

Public and private agencies can offer their services in recreation and camping facilities to the orthopedic child. Scouting, service clubs, and other agencies can broaden their scope of service to include the orthopedically handicapped child and adult.

Psychological services should be expended to parents of orthopedically handicapped children to include group discussion and group therapy for sound family relationships.

Legislation to further assist orthopedic cases should be enacted in all states, not only for financial care, but also for expanded medical, education and recreational services. This is a crying need in rural areas over the country.

The public should be made aware of the orthopedically handicapped through radio, television, press and parent-teacher organizations. They should realize the need to raise the physical and mental health of the nation and should learn to accept the orthopedically handicapped in industry and the professions so long as they are capable of doing a good job.

The medical profession should develop further programs of experimentation and research in order to achieve minimal handicapping conditions, and prevention of disease, common defects and other disorders.

We Look Ahead

The emphasis on qualities the handicapped have in common with normal individuals is now before us. The limitations are perhaps those of degree rather than of kind. It is quite unlikely that social attitudes or legislation will ever again revert to earlier fears, superstitions, negligence or pity of the orthopedically exceptional individual. With the impetus given the disabled after World War II comes added hope that the orthopedic child now growing up will also find comparative security in his job, family, community and nation.

Let us help him learn to help himself and become a sustaining member of our society.

Let us find ways to prevent deformities and to correct those that occur.

Let us find ways of preserving whatever functional abilities he has and of restoring those lost to him.

Let us really help him become *ortho* - a child and *pais* - straight — a straight child, in the real sense, that of a whole child, that of a functioning total being.

DIAGNOSIS OF CRIPPLED CHILDREN*

One-fifth of all the children who received services in 1950 had, as primary diagnosis, some congenital malformation. And approximately every fifth child among these had a cleft palate or harelip. About 8,000 children received services for this condition.

This is one among a variety of crippling conditions which brought approximately 214,000 children to the program in 1950 for services which included attendance of physicians.

As might be expected from variations in emphasis and types of coverage of crippling conditions in the 52 State programs, the proportion of children served in any State who had cleft palate and harelip ranged widely around the national average of 3.7 percent (see table). From less than 1 percent in Delaware, the Districts of Columbia, Rhode Island, and the Virgin Islands, the proportion mounts gradually to almost 13 percent in Ohio. The States group as follows according to these proportions:

Number of States	Percent with cleft palate and harelip
8	7.0 & over
5	5.0 - 6.9
8	4.0 - 4.9
11	3.0 - 3.9
11	2.0 - 2.9
9	Under 2.0
52	

Regional percentages are also given in the table which follows. They range from slightly over 2 percent in Region III to almost 6 percent in Region IV-V. While these averages for regions will be useful for some purposes, it should be

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*From *Diagnosis of Children Served in the Crippled Children's Program,* 1950. Children's Bureau Statistical Series #21 (United States Dept. of Health, Education, and Welfare: Washington, D.C., 1954).

observed that they usually embrace substantial differences among the States represented.

The largest numbers of children with cleft palate and harelip were served in Region IV-V (2,082 children), in Region I-II (1,297 children), and in Region X (1,182 children). The largest contributors to these totals, as well as to the national total were Illinois (590 children) and California (789 children). Other States with large numbers of children with this condition who received services were Pennsylvania (470), Ohio (390), Indiana (332), Michigan (313), and Texas (303).

Cleft Palate And Harelip
Among Children Who Received Services Under the Crippled Children's Progam, by State and Region: 1950

Region(a)	Total number of children who received services(b)	Children with cleft palate and harelip who received services (primary diagnosis) Number	As percent of total children who received services
United States	214,405	7,873	3.7
Region I - II	32,404	1,297	4.0
Connecticut	3,151	117	3.7
Delaware	891	7	0.8
Maine	1,856	134	7.2
Massachusetts	2,690	96	3.6
New Hampshire	1,287	33	2.6
New Jersey	1,280	92	7.2
New York	12,425	291	2.3
Pennsylvania	6,057	470	7.8
Rhode Island	1,218	9	0.7
Vermont	1,549	48	3.1
Region III	29,576	647	2.2
District of Columbia	2,806	18	0.6
Maryland	6,420	85	1.3
North Carolina	7,439	156	2.1
Puerto Rico	3,693	165	4.5
Virginia	6,287	88	1.4
Virgin Islands	156	1	0.6
West Virginia	2,775	134	4.8
Region IV - V	36,423	2,082	5.7
Illinois	8,380	590	7.0
Indiana	3,493	332	9.5
Kentucky	5,261	117	2.2
Michigan	6,721	313	4.7
Minnesota	3,886	212	5.5
Ohio	3,065	390	12.7
Wisconsin	5,617	128	2.3
Region VI	29,400	909	3.1
Alabama	8,572	203	2.4
Florida	6,124	195	3.2
Georgia	3,642	157	4.3
Mississippi	4,053	83	2.0
South Carolina	2,685	88	3.3
Tennessee	4,324	183	4.2
Region VII	15,554	657	4.2
Iowa	4,905	115	2.3
Kansas	3,084	167	5.4

DIAGNOSIS OF CRIPPLED CHILDREN

Missouri	2,781	156	5.6
Nebraska	2,355	113	4.8
North Dakota	1,575	51	3.2
South Dąkota	854	55	6.4
Region VIII	21,732	835	3.8
Arkansas	4,332	149	3.4
Louisiana	4,925	176	3.6
New Mexico	1,743	76	4.4
Oklahoma	6,872	131	1.9
Texas	3,860	303	7.8
Region IX	9,569	264	2.8
Colorado	2,069	66	3.2
Idaho	2,249	37	1.6
Montana	1,891	59	3.1
Utah	2,650	72	2.7
Wyoming	710	30	4.2
Region X	39,747	1,182	3.0
Alaska	627	8	1.3
Arizona	(c)	(c)	(c)
California	32,530	789	2.4
Hawaii	1,285	68	5.3
Nevada	533	18	3.4
Oregon	3,146	257	8.2
Washington	-1,626	42	2.6

(a) According to regional organization of the Federal Security Agency (Children's Bureau, Health Services).

(b) Includes children who received clinic services, physician's office and home services, hospital in-patient care convalescent-home care.

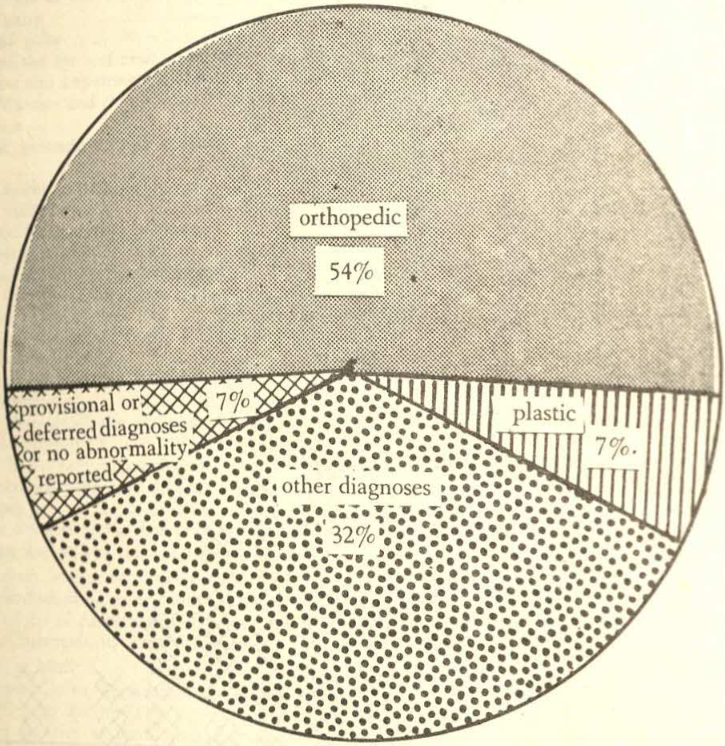
(c) Arizona did not participate in the crippled children's program under the Social Security Act during 1950.

DIAGNOSES[a] OF CHILDREN SERVED IN THE CRIPPLED CHILDREN'S PROGRAM, 1950[b]

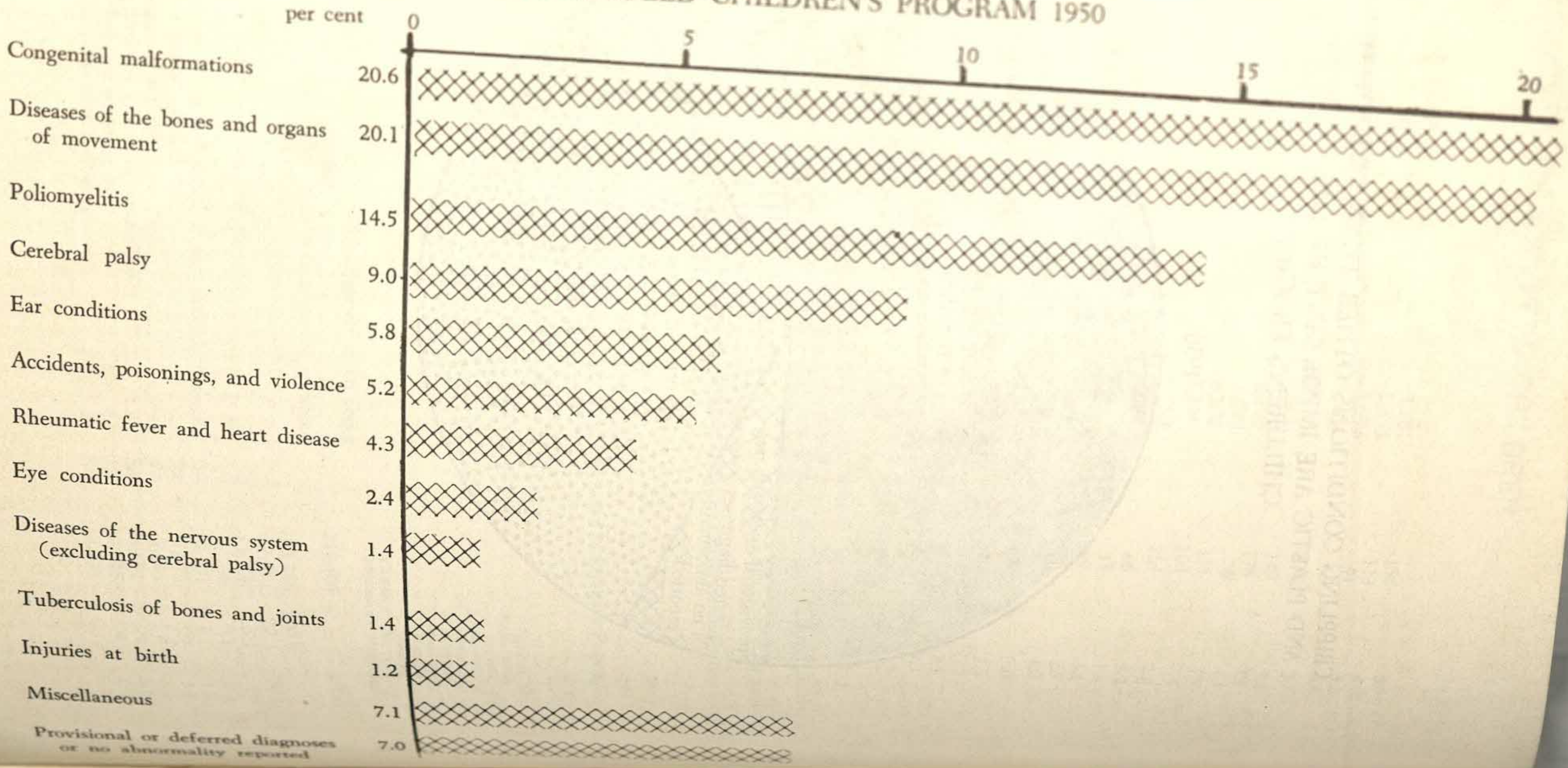
Diagnosis(a)	Number of States which include diagnosis in definition of crippling condition(c)	Number	Percent	Children who received physician's services(d)
Total—Including deferred diagnoses or no abnormalities reported		214,405		100.0
Total—Excluding deferred diagnoses or no abnormalities reported		199,358	100.0	
Congenital malformations		44,251	22.2	20.6
Spina bifida and meningocele	52	1,708	0.9	.08
Congenital cataract	19	236	0.1	0.1
Congenital malformations of the circulatory system	28	2,207	1.1	1.0
Cleft palate and harelip	52	7,873	3.9	3.7
Congenital dislocation of hip	52	2,662	1.3	1.2
Clubfoot, congenital or unspecified	52	14,662	7.4	6.8
Flatfoot, congenital	51	2,698	1.4	1.3
Other congenital malformations	52	12,205	6.1	5.7

CRIPPLING CONDITIONS OTHER THAN ORTHOPEDIC AND PLASTIC ARE IMPORTANT IN THE CRIPPLED CHILDREN'S PROGRAM

1950



A WIDE RANGE OF IMPAIRMENTS IS INCLUDED UNDER THE CRIPPLED CHILDREN'S PROGRAM 1950



DIAGNOSIS OF CRIPPLED CHILDREN

Diseases of the bones and organs of movement, except congenital malformations		43,171	21.7	20.1
Arthritis and rheumatism, except rheumatic fever	51	2,430	1.2	1.1
Osteomyelitis and periostitis, except tuberculous	52	3,895	2.0	1.8
Curvature of spine, except congenital or late effect of poliomyelitis or tuberculosis	52	5,278	2.6	2.5
Flatfoot, acquired or unspecified	52	12,904	6.5	6.0
Other diseases of the bones and organs of movement, except congenital malformations	52	18,664	9.4	8.7
Poliomyelitis		31,109	15.6	14.5
Poliomyelitis, acute	47	6,202	3.1	2.9
Late effects of acute poliomyelitis	51	24,907	12.5	11.6
Cerebral palsy		19,334	9.7	9.0
Cerebral palsy	52	19,334	9.7	9.0
Diseases of the ear and mastoid process		12,509	6.3	5.8
Deafness and impairment of hearing	18	8,462	4.3	3.9
Other diseases and conditions of the ear and mastoid process	17	4,047	2.0	1.9
Accidents, poisonings, and violence		11,031	5.5	5.2
Burns	51	3,429	1.7	1.6
Other morbid conditions due to accidents, poisonings, and violence	52	7,602	3.8	3.6
Rheumatic fever and heart disease		9,248	4.6	4.3
Rheumatic fever, acute	32	4,657	2.3	2.2
Chronic rheumatic heart disease	29	2,732	1.4	1.3
Other diseases of the heart, except congenital malformations	19	1,859	0.9	0.8
Diseases and conditions of the eye, except congenital or diabetic cataract		5,174	2.6	2.4
Refractive errors	9	154	0.1	0.1
Strabismus	19	3,759	1.9	1.7
Other diseases of the eye, except congenital or diabetic cataract	18	1,261	0.6	0.6
Diseases of the nervous system and sense organs, except cerebral palsy, eye and ear		2,924	1.5	1.4
Epilepsy	17	837	0.4	0.4
Other diseases of the nervous system and sense organs, except eye, ear, and mental disorders	49	2,087	1.1	1.0
Tuberculosis, except respiratory		2,910	1.4	1.4
Tuberculosis of bones and joints, active or unspecified	51	1,777	0.9	0.9
Late effects of tuberculosis of bones and joints	51	1,081	0.5	0.5
Other tuberculosis, except respiratory	16	52	(e)	(e)
Injuries at birth		2,574	1.3	1.2
Injuries at birth, intracranial and spinal, except cerebral palsy and epilepsy	48	340	0.2	0.2
Other injuries at birth, except cerebral palsy and epilepsy	51	2,234	1.1	1.0
Rickets		2,032	1.0	0.9
Rickets, active	46	681	0.3	0.3
Late effects of rickets	52	1,351	0.7	0.6
Diseases of buccal cavity and esophagus		798	0.4	0.4
Disorders of occlusion, eruption, and tooth development	10	746	0.4	0.4
Other diseases of buccal cavity and esophagus	14	52	(e)	(e)
Diabetes mellitus		174	0.1	0.1
Diabetes mellitus	5	174	0.1	0.1
Miscellaneous		12,119	6.1	5.7
Other diagnosed diseases, injuries, or handicapping conditions, except provisional or deferred diagnoses	51	12,119	6.1	5.7

Provisional or deferred diagnoses or no abnormalities		15,047	—	7.0
Provisional or deferred diagnoses	—	11,123	xx	5.2
Examination made, no abnormality reported	—	3,924	xx	1.8

(a) Represents primary diagnosis.

(b) Includes data for the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Excludes Arizona, which did not participate in the crippled children's program under the Social Security Act during 1950.

(c) Diagnosis included in the administrative definition of conditions for which children are eligible for care.

(d) Includes children who received clinic services, physician's office and home services, hospital in-patient care, or convalescent-home care.

(e) Less than 0.05 percent.

THE CARE AND TREATMENT OF CRIPPLED CHILDREN IN THE UNITED STATES*

A. R. SHANDS, JR.

It is most appropriate that the presentation of the care and treatment of the crippled child of the United States takes place in Great Britain, to which country we in America owe so great a debt of gratitude for what so many of your illustrious and inspiring leaders, such as Hugh Owen Thomas, Sir Robert Jones, and Dame Agnes Hunt, have done in the past in molding our opinions and guiding our programs. My discussion of this subject will be divided into five parts: (1) History; (2) Institutional Care; (3) Instruction; (4) Investigation; and (5) Survey of State Services.

History

The history of the care of the crippled child in the United States is in reality the history of orthopaedic surgery in our country, but for this discussion the historical portion will include only the presentation of the more significant "firsts".

William Detmold was the first well known physician in America to practice orthopaedic surgery as a specialty. He arrived in New York in 1837 from Hannover, Germany, and it is this year wihch should be designated as the year of the beginning of an American school of orthopaedic surgery. Detmold, like William J. Little who returned to London also in 1837 from Hannover, studied under Stromeyer and first became known in America for the application of Stromeyer's principles of tenotomy. In 1841, Detmold opened at Bellevue Hospital in New York City the first public clinic for the care of the crippled child.

In the same year, Valentine Mott, one of America's foremost surgeons, returned from an extended trip in Europe, impressed with the orthopaedic institutions and their work in France and Germany, and particularly with the work

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of M. Jules Guerin in Paris. In 1841, he announced the opening of an "Orthopaedic Institution at Bloomingdale, New York, for the Treatment of Curvatures of the Spine, Club Feet, etc.". This should have been our first hospital for crippled children, but because of the lack of encouragement and, in fact, the discouragement on the part of his medical confreres in New York, who looked with disfavor on specialization and some of whom even considered orthopaedics a form of quackery, this hospital was never opened.

In 1853, Louis Bauer, born in Stettin, Germany, and educated in medicine in Berlin, came to New York from England and settled in Brooklyn. He had studied with both Stromeyer and Little. Because of his political activities in Prussia before he arrived in England in 1849, he had been imprisoned for ten months and then forced to leave his native land. He is spoken of by Sir Arthur Keith as "the real founder of the American School of Orthopaedics" and is referred to by Hugh Owen Thomas as "the best exponent of American orthopaedics". In 1854, Louis Bauer, with Richard Barthelmess, opened an orthopaedic institution in Brooklyn, which was probably America's first orthopaedic hospital. His best known work, Lectures in Orthopaedic Surgery, published first in 1864, with a second edition in 1869, constituted the first American textbook. This book was translated into German in 1870 and later into Italian. It is recorded that partly because of many violent arguments he had with New York's three great men in orthopaedic surgery of that day — namely, Lewis A. Sayre, Henry G. Davis, and Charles Fayette Taylor — concerning the principles of rest, traction, braces, and ambulation, he left Brooklyn in 1869 and went to St. Louis where, in 1878, he became the founder, Professor of Orthopaedic Surgery, and later Dean of the College of Physicians and Surgeons of St. Louis. From the story of his life, it can truthfully be said, as was said of Benjamin Rush, "He was never a passive participant in any cause".

Our first professor of orthopaedic surgery was Lewis A. Sayre of the Bellevue Medical College of New York, who received his appointment in 1861. He is best known for being the first to perform a successful resection of the hip joint in 1854 and to use plaster-of-Paris to support the body in disease and injury. Sir Arthur Keith speaks of Sayre as being "the forerunner of the modern School of Orthopaedic Surgeons". Sayre was one of the outstanding figures in New York medicine of the day and in 1880 became not only President of the American Medical Association but also the first President of the American Surgical Association.

In December 1862, the first ward for crippled children was opened in Boston at the Samaritan Hospital by Buckminster Brown. He had studied under Stromeyer in 1845 and 1846, and in 1866, according to Osgood, he became probably the first orthopaedic surgeon in the United States to limit his work wholly to the specialty. In this same year of 1866, Charles Fayette Taylor founded the New York Orthopaedic Dispensary, which in 1870 became a hospital. In 1863, James Knight, a great conservative and an apostle of exercise and braces, opened the first permanent hospital for orthopaedic patients in New York City. This was named the Hospital for the Ruptured and Crippled. In this hospital, Knight insisted upon the children being given academic education and religious training; this represents our first formal education of crippled children in an institution. In 1872, the first convalescent home for crippled children, the Children's Seashore House, was opened at Atlantic City by William Bennett. This was for the "marine medication of the crippled child". "The young child was allowed to stay in the ocean only four minutes, for a stay longer than this was thought to be injurious to his health."

In 1897, through the efforts of Arthur J. Gillette, the first state crippled children's hospital was established in Minneapolis. The emotional appeal of a young crippled woman appearing before the Minnesota State Legislature was the deciding factor in obtaining funds for this project. In 1899, the first public school class for the education of the crippled child was opened in Chicago; this was the forerunner of the many schools and the hundreds of classes for the handicapped child in the United States today.

In 1919, the first national and international lay organization for crippled children was organized; it has now broadened its program to include handicapped adults and is called the National Society for Crippled Children and Adults, Inc. In 1922, in large measure as the result of the efforts of Michael Hoke of Atlanta, the first of a series of fifteen Shriners' Hospitals for Crippled Children in the United States and Canada was opened at Shreveport, Louisiana. The contribution which the Shriners have made over the last thirty years to the care of the crippled child in North America is probably the greatest single contribution any lay organization has ever made to one medical project.

In 1935, the first crippled children's program of the Federal Government was established by the Children's Bureau of the United States Department of Labor with an appropriation of nearly $3,000,000. This has now been increased to over $11,000,000, and is distributed to the states on the basis of need and matching funds. The entrance of the Federal Government into this medical activity was the direct cause for the improvement and, in some instances, the establishment of state crippled children's programs in all of our forty-eight states and the territories.

In 1935, the first hospital devoted entirely to the treatment of a single crippling disease in childhood, namely cerebral palsy, was opened by Winthrop M. Phelps in Baltimore, Maryland. This has been the inspiration and training center for hundreds of workers in this special field from all over the world and has been the direct cause for the establishment of over 500 cerebral-palsy centers in the United States alone.

In 1936, the first foundation devoted wholly to the problems of the crippled child was founded in Jacksonville, Florida. This is the Nemours Foundation, of which the author is the Medical Director. This Foundation operates, in Wilmington, Delaware, a crippled children's hospital and school with laboratory research facilities, the Alfred I. duPont Institute, and supports substantial programs of direct care to the crippled children of the States of Florida and Virginia.

In 1938, the first foundation for a single orthopaedic crippling disease was established, — namely the National Foundation for Infantile Paralysis, Inc. This was started because of the intense interest in the disease of our President, Franklin D. Roosevelt, himself crippled by poliomyelitis; he represents perhaps the greatest example in history of the success of a severely handicapped person. The support for the National Foundation is entirely voluntary; during the campaign of 1952 approximately $40,000,000 was raised throughout the United States. In 1950 the first national lay society for cerebral palsy was organized, the United Cerebral Palsy Association, which is the last of our more significant "firsts".

A comprehensive program for crippled children's care should not only give direct medical aid to the child in the clinic, the hospital, or the convalescent home, but also should provide for both the training of the varied personnel needed in the programs, as well as investigation on the many unsolved problems relating to his care. Academic instruction of this child, followed by vocational training when indicated, is important and may be given in the institution, in the home, or in special schools and classes. For convenient grouping, this program may be considered in terms of the three I's: I for Institutional Care, I for Instruction of the Child and Worker, and I for Investigation. The next three sections will follow this grouping.

INSTITUTIONAL CARE

At the present time there are on the state registers in the United States approximately 700,000 children handicapped by orthopaedic conditions, under the age of twenty-one years, of whom 60 per cent receive some type of medical care each year.

The last published statistics on facilities for the care of the crippled child in 1951 (Table I) showed that there were eighty-two orthopaedic children's hospitals with 6,708 beds and ninety-one convalescent homes with 6,400 beds which admit crippled children. This represents approximately 13,000 beds in special institutions which either are designated or can be used for the crippled child in general hospitals. The average daily occupancy of these beds in the special institutions is approximately 75 per cent. There are now very few states and territories of the United States which do not have adequate hospitalization facilities for their crippled children.

TABLE 1

FACILITIES FOR SPECIAL INSTITUTIONAL CARE OF THE CRIPPLED CHILD IN 1951

	No.	No. of Beds
Children's orthopaedic hospitals	82	6,708
Children's orthopaedic convalescent homes	91	6,400
Total	173	13,108
Average bed occupancy per day		75 per cent.

During 1950 there were 247,000 crippled children who received services in the state programs (Table II). Of this number 43,600 children were hospitalized for a total of over 1,400,000 days at an average stay of 32.7 days per child and 5,800 children were cared for in convalescent homes for a total of 560,000 days at an average stay of 95.2 days. Thus 20 per cent of the total active case load on the state registers for this year represented patients in institutions. There are no statistics available on the number of children cared for in institutions whose expenses are paid from sources other than state or Federal funds. As an example, in the fifteen Shriners' Hospitals which have not published their statistics, it is estimated that over 7,000 children are cared for each year and over 250,000 hospital days of care are being given. It is further estimated that the total figures for the hospitalization and the convalescent home care of crippled children should be from 25 to 35 per cent greater than those given for the state programs alone.

During the past fifteen years, the average hospital stay for the children in the state programs has decreased from 53 days to 32.7 days, while the average convalescent-home stay has varied from 86 to 108 days, but has not decreased. There has been a steady increase in the number of children receiving services, this increase being at a rate of 15 per cent a year since 1945. Each state program has a system of out-patient clinics for case finding, diagnosis, and follow-up examinations. These are usually located so that the patients will have to travel the minimum distance. Many of the clinics, however, are operated in conjunction with the hospitals. Approximately 85 per cent of the children receiving state services visit the clinics each year for an average of two visits per child.

The diagnoses of the crippled children in the last thirty-five years have definitely changed (Tables III and IV). The tuberculous-joint conditions which during the nineteenth century constituted from one third to one half of the cases in crippled children's clinics and institutions in 1950 constituted only 2.1 per cent of the total number of orthopaedic patients treated in the state programs, the highest incidence in any one state being 8 per cent. Pyogenic osteomyelitis, which was at one time such a common cause of crippling in childhood, now constitutes only 2.8 per cent, because of the early use of the antibiotics. The number of cases of infantile paralysis is not decreasing. During 1950 over 31,000 children with poliomyelitis were treated in the state programs, or 22.2 per cent of the total. This does not represent the total number in the country, as in that year approximately 28,000 new patients under twenty-one years were reported by the National Foundation for Infantile Paralysis. The number of congenital malformations in the crippled children's clinics is increasing. In 1950, these constituted 29.7 per cent of the total, the largest percentage being clubfoot (10.4 per cent). In certain sections, such as the Southeast, the percentage is greater than in the other sections of the country. Cerebral palsy is the next largest group and constitutes 13.8 per cent of the total number of cases. However, it is estimated that there are approximately 175,000 cases of cerebral palsy in the United States, or 25 per cent of the total estimated number of crippled children. Rickets, which many years ago was such a common cause of deformity in the growing child, in 1950 was only responsible for 1.4 per cent of the total number of reported cases. The chart prepared from the 1950 statistics of the Children's Bureau (Table IV) gives the incidence of the fifteen most common conditions or groupings of conditions in 142,177 orthopaedically handicapped children, which is 66

TABLE II

INSTITUTIONAL CARE OF CHILDREN IN STATE PROGRAMS FOR 1950

Total number of children receiving clinic and institutional services	247,000
Total number of children in hospitals	43,600 (17.6 per cent.)
Total number of children in convalescent homes	5,800 (2.3 per cent.)
Total number of hospital days	1,400,000
Total number of days spent in convalescent homes	560,000
Average stay per child in hospital	32.7 days
Average stay per child in convalescent home	95.2 days

TABLE III

ORTHOPAEDIC CONDITIONS

(STATISTICS ON 142,177 HANDICAPPED CHILDREN IN STATE PROGRAMS IN 1950)

	Per cent.
1. Neuromuscular disorders	36.0
2. Congenital malformations	29.7
3. Developmental disorders	27.7
4. Infections of bones and joints	6.6

per cent of 216,623, the total number of children receiving services under the state crippled children's program for that year.

There are no exact figures available on the cost of crippled children's care; however, it is estimated that in 1950 approximately $30,000,000 was spent by the states and territories in their crippled children's programs. If 25 to 35 per cent more care is being given through private sources, the total would then be between $37,500,000 and $40,500,000. Of the amount spent for state care approximately 25 per cent, or one in every four dollars, comes from Federal funds. The costs of care have steadily risen and have increased so sharply in the last several years that two years ago many of the states were forced to curtail their programs because of lack of funds. Since 1940, the average cost per patient per day in most hospitals has increased from 200 to 250 per cent. During 1950, the average cost of institutionalizing a crippled child in a state-designated institution was approximately $327.00 in a hospital and $666.00 in a convalescent home.

INSTRUCTION OF THE CHILD

In thirty-nine of the forty-eight states there are programs for the special education of the crippled child, or the exceptional child as he is most often spoken of (Table V). The number of special education services in the city schools has increased from 729 cities with such services in 1940 to 1,459 in 1948, a growth of 100 per cent. The total number of children in 1948 known to be receiving special education was over 440,000. It is estimated, however, that not more than 15 to 20 per cent of the approximately 6,500,000 children needing special education are receiving such. In all programs for the education of the exceptional child are included non-orthopaedic conditions, such as visual and hearing losses, epilepsy, rheumatic fever, speech defects, and cardiac conditions. The orthopaedically handicapped children constitute approximately 8 per cent of the total number in need of special education. This special education is being given in the institutions, in special schools, in special classes held in schools for normal children, and in the home for those unable to go to school. In 1948, of over 30,000 orthopaedically handicapped children, 47.5 per cent were in schools and special classes, 27.7 per cent in hospitals, and 24.6 per cent in homes. Two out of three handicapped children can attend the regular classes with normal children.

The weakness in the program for the education of the child handicapped by an orthopaedic condition is in the general hospitals, where there are seldom enough children at one time to justify the full-time services of a teacher. It is very heartening to see the increase in the number of facilities for the

TABLE IV

Diagnosis
(142,177 Cases)

	Number	Per cent.
1. Poliomyelitis	31,851	22.4
2. Cerebral palsy	19,574	13.8
3. Other diseases of bones and joints, including the osteochondritides	18,980	13.3
4. Club-foot, congenital	14,803	10.4
5. Flat-foot, acquired	13,030	9.1
6. Other congenital malformations	12,361	8.7
7. Cleft palate and harelip	7,949	5.6
8. Scoliosis, idiopathic	5,358	3.8
9. Osteomyelitis, pyogenic	3,923	2.8
10. Tuberculosis of bones and joints	3,019	2.1
11. Flat-foot, congenital	2,701	1.9
12. Hip dislocation, congenital	2,682	1.9
13. Arthritis, rheumatoid	2,456	1.7
14. Rickets, active and old	2,043	1.4
15. Spina bifida with meningocele	1,717	1.2

TABLE V

Instruction of the Crippled Child

Number of states with special programs for education of exceptional children (1951)	39	
Number of cities with special education programs (1948) (100 per cent. increase in 8 years)	1,459	
Total number of children in need of special education (estimate)	6,500,000	
Percentage of total receiving education (estimate)	15	
Percentage of total number of children receiving special education who have orthopaedic conditions	8	
Location of special education in 1948 for 30,000 children with orthopaedic conditions:		
a. In special schools	47.5	per cent.
b. In special classes	27.7	per cent.
c. Home instruction	24.6	per cent.

education of the child with cerebral palsy which have been developed over the past several years.

In one survey of 10,000 crippled children attending school, 80 per cent were in the first to the eighth grades, 7.4 per cent in grades higher than the eighth, and 4.4 per cent in nursery school.

Each state has its vocational rehabilitation services, usually operated as a division of the state department of education, working very closely with the orthopaedic clinics and institutions. In the United States training in state vocational rehabilitation programs may legally begin at the age of sixteen. In the year 1951, 14,118 orthopaedically handicapped children between sixteen and twenty-one years of age were rehabilitated by the state services. It is interesting to note that 51.4 per cent of these rehabilitants were crippled because of disease, 30 per cent because of congenital malformations, and 5.1 per cent because of amputations or congenital absence of the extremities. Of nearly 184,000 rehabilitants of all ages in the last three years, 20 per cent were under twenty-one years of age (Table VI). The state services not only train but also furnish vocational guidance, find employment for the rehabilitants, and follow them until they have made a satisfactory vocational adjustment. In the United States, there are practically no programs of vocational education which are operated as a part of a crippled children's institution as are to be found in Great Britain.

INSTRUCTION OF THE WORKER

The training of the worker, particularly of the doctor, the nurse, the therapist, and the teacher, in crippled children's activities is another very important part of the program. The lack of adequate personnel has frequently proved to be the bottleneck of many programs.

The three-year training course of the orthopaedic surgeon in the United States includes one year of children's orthopaedics. In 1951 there were 261 hospitals approved for orthopaedic training, offering a total of 800 residencies (Table VII). Of this number approximately 220 orthopaedic residencies were in work with crippled children in 117 approved hospitals. Each institution approved for work with crippled children has not less than twenty active beds for crippled children. If an orthopaedic surgeon is to participate in a state program for crippled children, he must now be certified by The American Board of Orthopaedic Surgery or he must have completed his training for Board certification.

There are eight schools of nursing offering orthopaedic training with a capacity for 152 students. In addition, many short postgraduate courses are being given for the orthopaedic nurse. There are definitely not enough properly trained nurses in the hospitals and state programs.

In 1951, there were thirty-one schools for training physical therapists, graduating 498 students, and twenty-four schools for occupational therapists, grad-

TABLE VI

STATE SERVICES FOR VOCATIONAL REHABILITATION (1949-1951)

	No. of Patients	Per cent
Total number of patients of all ages:	183,810	
Total number under 21 years:	37,504	20.4
Cause of disability in rehabilitants under 21 years		
a. Disease		51.4
b. Congenital malformations		30.0
c. Amputation or congenital absence of extremity		5.1

TABLE VII

ORTHOPAEDIC RESIDENT TRAINING PROGRAM IN 1951

Total number of approved hospitals	261
Total number of residencies	800
Number of hospitals approved for crippled children's training (45 per cent. of total)	117
Number of crippled children's residencies (27.5 per cent. of total)	220

uating 418 students. The number of graduates of these schools does not meet the demand for work in these fields. The greatest shortage now in the state programs is of physical therapists and next of trained social workers. There is a scarcity of the number applying to be trained in speech and recreational therapy; such therapists are extensively used in all of our programs.

There is definitely a shortage of trained brace makers. This training is at present almost entirely under an apprenticeship system. A recent advancement in this field is the establishment of the American Board for Certification of brace-makers and limb-makers.

There are now 175 universities giving special courses to teachers for work with the handicapped child. It has been recognized that the number of teachers with special training will never be sufficient to meet the demand, so that in nearly all states special education courses are being given for the classroom teacher.

INVESTIGATION

Investigations on problems of the causes of crippling in childhood undoubtedly constitute the most important research in our specialty. Some of our university centers have excellent programs of biochemical, physiological, pathological, and anatomical research related to the crippled child, but there are not enough of these programs. Some of the more important basic problems now being investigated in the orthopaedic clinics in the United States are bone growth, epiphyseal stimulation, repair of bone, protein content of bone, biomechanics of gait, scoliosis, congenital deformities, muscle physiology, and poliomyelitis. Research in connection with metals and other materials for braces is another recent development.

Nearly every clinic has some type of program of clinical investigation with follow-up studies on its cases. In many clinics there are animal investigations related to surgical procedures. In the last survey made of orthopaedic research in 1940, there were 368 laboratory and clinical projects in 190 institutions. Of these 11 percent were wholly laboratory; 54 per cent were clinical and laboratory; and 35 percent were wholly clinical. Another survey is now being conducted by the National Research Council. It is the author's opinion that since 1940 the volume of research has more than doubled. The orthopaedic surgeon of the past was interested more often in clinical matters than in research, probably because of his early training. In recent years, there has been more emphasis placed upon basic science and research in the teaching centers, so that the orthopaedic surgeon now finishing his training nearly always has an interest in some research problems. One of the outstanding research orthopaedic clinics in our country today is at the University of California where teaching, research, and clinical practices are coordinated into a pattern which it would be well for every large clinic to follow.

SURVEY OF STATE SERVICES

During 1951, a survey was made of the crippled children's services in the forty-eight states, the District of Columbia, Hawaii, Alaska, Puerto Rico, and the Virgin Islands, by the Joint Committee on the Public Care of the Crippled Child of which Dr. A. Bruce Gill is Chairman and the author is Secretary.

This survey was made primarily to secure the opinions of the orthopaedic surgeons who were actively participating in the state programs.

As a result of this survey, not only were many needs pointed out, but also many weaknesses in the programs became apparent. Forty needs were listed from fifty-three sources (Table VIII). As might be predicted, the most frequently mentioned need (fifteen times) was for more funds. The second greatest need (twelve times) was the lack of an adequate number of social workers and the need for better social-service investigation. In addition to inadequate social work, the shortage of personnel was almost everywhere apparent, but shortage of physical therapists was next in frequency, followed by shortage of nurses, occupational therapists, and speech therapists. The need for better coordination in the state programs and inter-agency liaison was mentioned eight times. The doctors in seven states were cognizant of the lack of adequate educational facilities for the children. Five states needed better facilities for the care of the child with cerebral palsy. In four states the hospital facilities and number of crippled children's beds were not adequate and in four states attention was called to the fact that the follow-up of hospital patients in the clinics was not satisfactory. Proper parent education was mentioned as a need three times, but probably is a need in all states. In two states the programs were definitely not well administered and in two other states is was felt that the vocational rehabilitation services were not active enough. In two states the need for convalescent facilities was mentioned, but, as a general rule in the country as a whole, the policy is to send the children from the hospital back to their own homes as soon as possible after surgery and normal postoperative care. In many states, in recent years, convalescent homes have been closed because of the small number of children needing this type of service. One need which was only mentioned once, although it is believed to be a real need in every state, is facilities for the domiciliary care of the child hopelessly crippled with cerebral palsy, progresive muscular dystrophy, infantile paralysis, and similar conditions.

TABLE VIII

MOST IMPORTANT OF FORTY NEEDS REVEALED IN 1951 STATE SURVEY OF ORTHOPAEDIC SURGEONS

(IN ORDER OF FREQUENCY MENTIONED)

1. Additional funds
2. Better social-service investigation and follow-up
3. Additional personnel
    a. Social workers
    b. Physical therapists
    c. Nurses
    d. Occupational therapists
4. Better coordination between agencies
5. Better educational facilities
6. More facilities for care of the child with cerebral palsy
7. Evaluation surveys of professional care
8. Programs of parent education
9. Facilities for domiciliary care of the hopelessly crippled child

It was the opinion of the joint Committee that the best operated state programs were those which were administered by a special crippled children's commission or medical agency. The programs were being administered by a health department in thirty-one instances, a welfare department in ten instances, a crippled children's commission in four, an education department in three, and a health and welfare department in one. It was found that where a crippled children's program did not have an independent status, monies often were being appropriated by legislatures when the legislators did not know how much was actually needed for the care of the crippled child. This was believed to be an unfortunate situation and in many instances the Committee was of the opinion that the crippled children's programs were suffering.

It was found often that, because of a state agency policy of having the crippled children cared for by orthopaedic surgeons as close to the homes of the patients as possible, some of the older established institutions were not obtaining sufficient patient material for teaching and investigation. Moreover, this policy of decentralization in many instances definitely was not resulting in the best of medical care for the children.

It was appreciated by the Committee that in many states the medical care of the crippled child was not what it should be. The Committee strongly endorsed state evaluation surveys of professional care by competent and older orthopaedic surgeons from other states.

There was no doubt that in many states there was a duplication of services in which different agencies were actually competing for the care of the crippled child. The Committee recommended that a state coordinating committee be established in every state, made up of representatives of all the crippled children's private and public agencies.

Many of the programs lacked the leadership of the orthopaedic surgeons and often political influence had crept into the programs. The Committee very strongly recommended that the orthopaedic surgeons should always be active in the administration of their state programs and that, when political influences were affecting the programs adversely, they should see that steps are taken through state, county, and city medical societies to remove these political influences.

As a result of this survey, recommendations for the improvement of the crippled children's services were made by the Joint Committee to the Executive Committees of The American Orthopaedic Association and The American Academy of Orthopaedic Surgeons for their approval. These recommendations then will be presented to the Children's Bureau of the Federal Security Agency for their consideration and hoped-for action.

Conclusion

The author hopes that from this short discussion of our past and present activities the reader has been able to obtain some idea of the problems of the care and treatment of the crippled children in the United States. We are all working for the betterment of our programs, whether it is in Great Britain, America, or other parts of the world. As a result of our efforts, it can be hoped that there will everywhere be a continued rehabilitation of the greatest possible number of orthopaedically handicapped children. None of us will ever live to see the day of the perfect program in any state or nation; we can only hope that it can always be said that the orthopaedic surgeons of today are meeting their responsibility for the restoration of the crippled child to a normal life, or as nearly normal a life as possible.

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ORTHOPEDIC PROBLEMS IN CHILDREN*

EDWARD F. RABE

Orthopedic abnormalities are not uncommon findings in children. Their discovery is often difficult in the very young child. Because of this our discussion will be concerned with those orthopedic abnormalities which are seen in children from birth to five years of age. Emphasis will be placed upon early diagnosis in order that the best results and the shortest course of treatment can be anticipated. The diseases which will be described will be approached from the point of view of the pediatrician or the general practitioner, those persons who are responsible for the over-all health of the child.

Two groups of abnormalities will be described. This grouping is based upon the age of the child who exhibits the symptoms. In the first group we will describe those orthopedic abnormalities which are seen in children from birth to 12 months of age. In the second group we will consider some abnormalities seen in children from the first year to the fifth year of age.

The first abnormality to be considered is "congenital" muscular torticollis. This abnormality usually involves only one sternocleidomastoid muscle. Contrary to common teaching it is not the result of hemorrhage into the muscle. Studies by Middleton[1] have shown that the disease is due to circulatory stasis, a situation analogous to Volkmann's ischemic contracture. Chandler[2] has indicated that "congenital" torticollis occasionally exists prior to birth, and that it can be a potent factor in causing breech presentations. A hard immobile fusiform swelling rarely tender will be present in the muscle at birth or more often manifest itself by the tenth to the fourteenth day of life. Microscopically, this mass consists of fibrous tissue and degenerating muscle cells. The diseased muscle is shortened and the face is gradually turned away from the affected side. The baby cannot turn its head toward the involved side. If this muscular contracture is permitted to continue untreated, the skull becomes foreshortened in the oblique fronto-occipital diameter. The level of the

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eyes changes, the mastoid process becomes increasingly prominent, and the clavicle and the shoulder become elevated on the affected side. A lower cervical and upper dorsal scoliosis can develop with concavity toward the involved side. Such is the course of the progressive "congenital" torticollis.

The existence of the tumor runs a variable course. It often increases in size until at the age of four to six weeks it is as large as an almond. The mass then begins to regress and may disappear completely within five to eight months. During the period of first recognition and through the age of six months, it has been recommended that the lump be massaged, and the baby's head be cautiously turned daily in a direction opposite to the pull of the diseased muscle. If, however, the tumor continues to increase in size after the sixth week of life, and if the pull of the diseased muscles causes increasing torsion of the head of the baby, surgical correction of the lesion is indicated. This can be undertaken with these indications as early as three, but preferably not before six months of age.

The complete investigation of the cause of "congenital" torticollis should include an x-ray examination of the cervical and upper thoracic portions of the spine. The purpose of the examination is to rule out the presence of a congenital abnormality of the vertebrae which can also result in somewhat similar clinical symptoms.

Fracture of the clavicle of the newborn is mentioned merely because it is probably the most frequently broken bone in the newborn baby. Diagnosis of the fracture is made when the baby performs the Moro reflex asymmetrically with the arms, and when an x-ray examination confirms the suspicions so raised. Hyper-mobility and crepitation of the bone are seldom found. The discovery of a callus on the clavicle is another method of diagnosing the disease, although it is obviously retrospective. This finding highlights the diversity of opinion concerning therapy. Although immobilization of the arm and shoulder on the affected side is sometimes recommended, there are physicians who feel that no treatment is required. One physician has stated that no lasting deformity or abnormality has been seen as the result of such an attitude.[3]

An asymmertical Moro or embrace reflex manifested in an upper extremity can be produced by entities other than clavicular fracture. These entities include fracture of the long bone, brachial plexus injury, or even epiphyseal separation of the humerus.

Fracture of the upper arm is not common in a newborn baby, and when it occurs it is noted just below the insertion of the deltoid. Treatment is obviously orthopedic and requires early simple fixation by splints.

Brachial plexus injuries occur in spontaneous deliveries, but they are more likely to be noted when excessive traction is exerted upon the head. If this force is slight, the nerves are stretched; if severe, the nerves are actually torn. The nerves most often involved are the suprascapular, the fifth and the sixth cervical nerves. The seventh and eighth cervical and the first dorsal nerve are occasionally involved. The amount of recovery depends upon the extent of nerve injury. If nerves are torn and perineural bleeding occurs, complete recovery from the symptoms is not to be expected.

Injury involving the whole brachial plexus results in impairment of the following motions: abduction and external rotation of the arm, flexion and supination of the forearm, and dorsiflexion of the wrist. The injury may be complicated by fracture of the clavicle, neck of the scapula, shaft of the humerus, or by epiphyseal separation of the head of the humerus. An associated and sometimes fatal lesion is injury to the phrenic nerve resulting in a unilateral diaphragmatic paralysis. This is accompanied by mediastinal flutter and often contralateral pulmonary atelectasis.[4]

The Klumpke type of paralysis, which is rare. is due to injury of the lower roots of the brachial plexus. The intrinsic muscles of the hand are paralyzed and the hand may be red and swollen. Accompanying this is a homolateral Horner's syndrome with drooping of the eyelid, enophthalmos, contraction of the pupil, and absence of sweating of the involved side of the face. This syndrome is due to injury of the sympathetic fibers in the first thoracic roots.

It is apparent that before treatment is undertaken in a child with suspected brachial plexus palsy, radiologic examination of the chest, involved extremity, and associated joints should be made. Treatment should be conducted in cooperation with the orthopedists.

The treatment of associated diaphragmatic paralysis is supportive. Oxygen therapy for cyanosis, digitalization for occasional associated cardiac failure, gavage feeding in face of tachypnea, and chemotherapy to prevent complicating pneumonia in the atelectatic areas are the therapeutic measures to be considered.

Epiphyseal separation is an entity which occurs most often as a result of breech delivery. It is seen in the upper humeral epiphysis and in the upper or lower femoral epiphysis. In humeral injury the affected limb is usually limp, extended, and externally rotated. If the femur is the site of injury, the baby maintains a frog position even on the second day of life. In all instances there is local tenderness and pain on passive motion. Low-grade fever is not infrequent. X-ray evidence of pathology is not visible until at least after the fifth day of life.[5]

In the course of healing epiphyseal separation one should be aware of the possible occurrence of hypocalcemic tetany with convulsions. This complication can be successfully treated with calcium intravenously, then orally, plus vitamin D orally.[6]

No specific treatment is needed for the epiphyseal separation itself. However, the patient should be followed until the callus is absorbed and weight bearing is begun.

An important group of orthopedic diseases of the hips which can be recognized during the first six months of life are the related anomalies of dysplasia, subluxation, and luxation of the hip. The probable interrelationship of these three abnormalities was publicized by Hart.[7] Congenital dysplasia of the hip may be defined as an interruption in the growth forces of the rapidly growing mesodermal elements which form the anatomical structures of the hip joint as a whole. This includes the innominate bone, femur, capsule, ligamentum teres, and musculotendinous structures about the hip. As a result of this abnormality in growth, the hip joint may become partially dislocated or subluxed. But not until weight bearing is begun (which begins with crawling) will complete dislocation or luxation be noted.

The etiology of this sequence of maldevelopment is not known.

Clinically, the earliest sign of dysplasia or subluxation is limitation of abduction of the thighs. Normally the thighs can be abducted 80 to 90 degrees from the vertical in a quiet baby. Failure of this degree of abduction can be noted as early as the newborn period, but at this age it is not always pathognomonic of a dysplastic hip.[8] Within the period of the first four months of life associated clinical findings can be seen, especially if the hip becomes partially dislocated. The folds or creases of the inguinal region, the buttock, the thigh, and the popliteal spaces will be uneven and the pelvis may be tilted with the affected side being higher than the normal side. A sign said to be of value is found with variable frequency and inconsistent enthusiasm; this is Ortolani's sign of the click. When the hips are flexed, then slowly abducted, a clicking sound is heard as the reduced femoral head rides into the acetabular socket.

Roentgenographic signs of hip dysplasia may be slight or lacking until three months of age or more.[8,9] Clinical findings are to be relied upon before this.

The natural history of a dysplastic and partially dislocated hip joint is not predictable. It is agreed that a dysplastic hip may become a normal hip without treatment or the hip may become partially dislocated. A case of a partially dislocated hip in a child one year of age returning to normal without treatment has been documented.[7] However, in our present state of knowledge it would seem advisable to treat a dysplastic or partially dislocated hip as soon as it is recognized. A simple Frejka splint which is nothing more than a pillow placed between the baby's legs holding them in marked abduction is sufficient for dysplastic hips and some partially dislocated hips.[8] Older children with luxation will more likely need casts. The point to be remembered here, however, is that early diagnosis of dysplastic hip, followed by early referral to an orthopedist, will enable the child to be treated without a cast.

Orthopedic abnormalities of the feet in newborn infants should be recognized. However, it is difficult to define those mild or moderate abnormalities which will spontaneously return to normal as opposed to those which need treatment. As yet there is no dogmatic answer to the problem, and one can only describe the situation as it appears at the moment.

Calcaneovalgus deformity of the foot is recognized among orthopedists as a possible precursor to flatfoot. This sequence occurs if the abnormality is marked.[11] A moderate to marked calcaneovalgus foot will show the following characteristics by the fifth or sixth day of life: calcaneous position with the top of the foot in close relationship to the anterolateral aspect of the leg, resistance to extension of the ankle to much below a right angle, a small concavity in front of the lateral malleolus on extension of the foot, and a tendency toward external rotation of the entire limb. The original calcaneovalgus foot is not flat. It is thought that the outward rotation of the leg will lead to valgus position of the foot, and this in turn will be followed by developmental flatfoot. Developmental flatfoot can lead to knock knees. Since this is more likely to occur in the severe calcaneovalgus foot, supervision of treatment of this deformity should be done by the orthopedists during the first few weeks of the infant's life.

Congenital "clubfoot" is a term used to describe a foot which is twisted out of shape or position. It is said to occur in one out of one thousand births.[12] Seventy-five per cent of the abnormalities are classified as equinovarus. A closely allied abnormality which has been defined by Kite[13] as a "third of a clubfoot" is metatarsus varus. In this abnormality there is forefoot adduction and eversion, and no associated equinus deformity. Both equinovarus and metatarsus varus can be recognized in the newborn period and both should be treated immediately by the orthopedists.

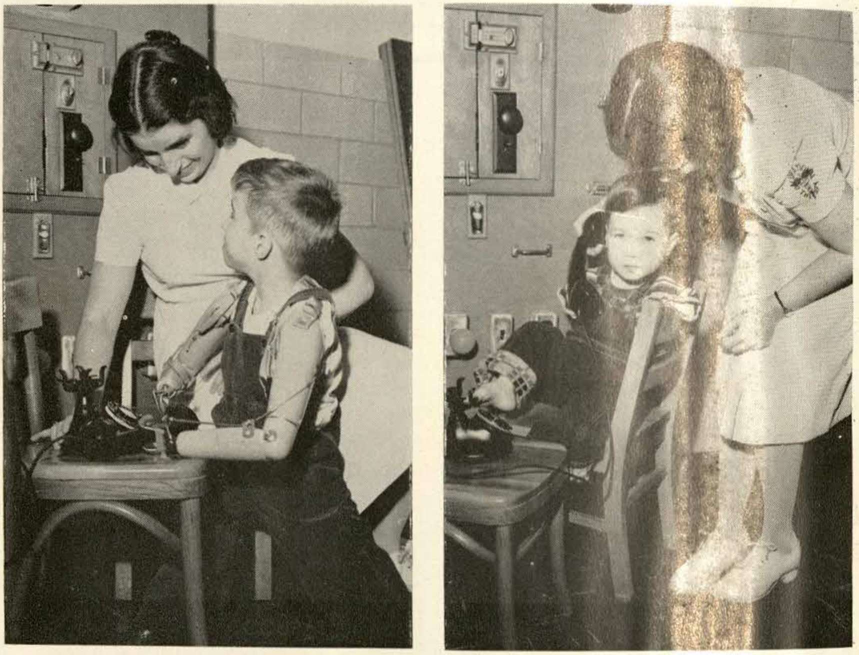
The next group of orthopedic abnormalities which we will discuss are most often seen in children over the age of one year. Discussion of these entities is undertaken to provide the physician with an awareness of the lesions, the key to diagnosing these entities which are not immediately obvious on physical examination.

In the course of normal development of the spinal cord, the bony vertebral axis grows at a faster rate than the main neural axis. Thus at birth the neural conus medullaris is found opposite the third or fourth lumbar vertebra, and by the time growth has ceased the conus lies opposite the first lumbar vertebra. Abnormalities of the lower thoracic, lumbar, or sacral parts of the spine can cause pressure on the spinal cord, and thus a fixation of the cord which will prevent its caudal migration. Such abnormalities are numerous and include bony spicules growing from the posterior aspect of the vertebral body across the bony canal, thus transfixing the spinal cord (diastematomyelia), extradural lipoma, subdural lipoma, fibrous tissue tracts leading from the skin to the dura or even intraspinal meningocele. Most of these lesions are associated with a spina bifida occulta, hemivertebra, or other bony abnormalities of the vertebral column.[14]

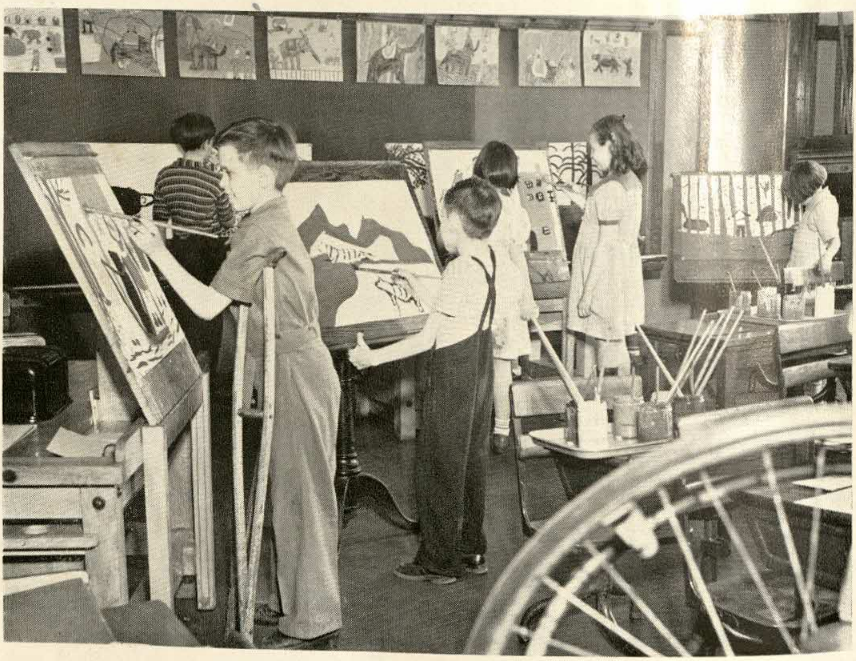
The clinical symptoms associated with these abnormalities are varied but can be easily categorized. Progressive neurologic or orthopedic defects of the lower extremities such as weakness in muscle groups, cavus, valgus, or varus deformities of the feet, the late onset of walking, urinary or fecal incontinence or regression in excretory habits after satisfactory "training" has been established, can be seen singly or in combination. Any of these abnormalities when seen in association with cutaneous mid-line lumbosacral tufts of hair or cutaneous telangiectases plus roentgenologic evidence of spina bifida occulta should alert one to the possibility of existing intraspinal pathology. There should then follow a diagnostic investigation to ascertain whether or not the child deserves an exploratory laminectomy. Early operation will prevent the progression of symptoms and, if the symptoms have not existed too long, may even result in some regression of the complaints.[14,15,16]

Coxa plana (Legg-Perthes' disease) is the second orthopedic abnormality occurring in this older group of children. It usually occurs in the age group between four and ten years, but it has been seen in the third year of life.[17,18] The etiology of coxa plana is not known. Pathologically, there is swelling, edema, and hyperemia in the synovial membrane of one or both hip joints. Microscopically, there is villous formation, hypervascularity, and perivascular lymphocytic infiltration in the synovial membranes. Softening occurs at the junction of the neck and the epiphyseal disk due to decalcification and increased vascularity. Following this there occur areas of increased calcification in the epiphysis, which areas are subsequently invaded by blood vessels and granulation tissues leaving areas containing very little bone. The epiphyseal head then flattens and becomes wider and the femoral neck becomes thicker and shorter. With healing the bone recalcifies, but the femoral head remains mushroom-shaped.[17]

LEARNING TO BALANCE AND WALK
Special Class, Detroit Public Schools, Dept. of Special Education



OCCUPATIONAL THERAPY
Massachusetts Hospital School, Canton, Mass.



ART CLASS FOR CRIPPLED CHILDREN
Spalding School, Chicago, Ill.

The commonest symptom of this disease is a limp. It is slight at first. The other symptom, pain, begins later and is mild. It is referred to the groin, the inner aspect of the thigh, or about the knee, i.e., along the distribution of the obturator nerve. The pain is worse with activity but is relieved by rest. Occasionally limitation of motion is noted early in the course of the disease.

The most important signs of the disease are limitation and pain at the extremes of motion of the thigh, especially lateral motion and rotation. This limitation, pain, and even muscular spasm, will increase with the severity of the disease. Limp which occurs late in the disease is due to limitation of motion and shortening of the femur.

Early diagnosis of coxa plana is arrived at by thinking of the possibility of the entity and is confirmed by the roentgen findings. Treatment is mainly concerned with limitation of weight bearing, which is most successful in the early stages of the disease. During the stage of synovitis without bone changes, treatment can lead to healing without bone changes. Even when bone changes have begun, early diagnosis and treatment shorten the course and lessen the extent of the disease.[17]

SUMMARY

In conclusion, then, we have attempted to describe those orthopedic abnormalities which occur in children under the age of five years whose early diagnosis and treatment lead to maximal recovery. These entities have included 'congenital' torticollis, brachial plexus palsy, epiphyseal separation, dysplasia of the hip, and abnormalities of the feet, all of which occur during the first six months of life. Those orthopedic entities seen most frequently in the age group of one to five years included intraspinal abnormalities with associated orthopedic and neurologic defects in the legs and sphincters, and coxa plana.

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PARENTS OF THE ORTHOPEDICALLY HANDICAPPED CHILD*

E. LOUISE WARE

Parents as such have received a great deal of attention in recent years. They have been the object of many realistic and dispassionate studies on the part of psychiatrists, psychologists, sociologists and workers in related fields. It has become clear that while with most parents the feeling of loving concern predominates, even the best of them have occasional moments in which the contrary emotion gets the upper hand. This modern view does not destroy respect for parents, but tends to heighten appreciation for their struggles and to open the way for more effective relationships in family life.

In this new approach, all parents are seen as individuals as well as mothers and fathers. As individuals they have the same basic emotional needs as everyone in our society — the need to love and the need to be loved, and, in addition to this, the need for self-development. If their own childhood was rich in happy contacts with loving adults, the chances are that they as grown-ups know how to create this same atmosphere of love and trust — and especially that as parents they have a basic security and confidence which stands them in good stead as they meet the issues of family life. After a childhood in which love and acceptance are the basic realities of life, one is pretty sure to be well equipped to cope with any human problem even a difficult or painful one. Happy parenthood is then a fitting sequel to happy childhood and youth. New depths of love and reassurance are fathomed and the life of the parent becomes rich indeed in warmth and in all the qualities which make the loving spirit. The little company of trusting people — the family — give a continuing sense of unity and support, a group strength, which engenders new personal forces and encourages further self-fulfillment. From this base of childhood security, and the additional securities in adult life, parents reach out to fulfill other aspects of their particular personal needs in work, in education, in the assuming of civic responsibilities and in artistic endeavor, and in turn bring to their family the results of these enriching experiences.

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Such is the case with parents who are happy and secure. But of course there are many parents who have had all too little happiness or sense of security, and a few who have had none at all. Hence we may expect their attitudes to reflect their insecurity, and their responses to be in accordance with their unmet needs. An anxious parent who brings fear to his marriage and home because of personal feelings of conflict — perhaps recollections of painful childhood experiences — often finds himself denied the benefits of love, feels himself hemmed in and stalemated. In his predicament, he often falls back upon protective devices, places over-emphasis upon his children, makes complaints against others, blames and pities himself alternately — in short, shows signs of distress that bespeak his long-felt need for love and acceptance.

Parents and family relationships are ever changing. By new currents and forces in family life alterations occur, and roles of members are subject to readjustment. For instance, in a happy home, the coming of a new baby tends to bring people closer together — parents and children have a new bond — though the little brother or sister may take a while to get used to the baby. Again, the illness of a loved son or daughter draws parents together in their natural apprehension. The maturing of a young son, and interest in his shifting concerns in high school or college, often creates new interests and new ties and gives parents a wider outlook on the world than they had had before. The marriage of an older daughter means readjustments of the younger children in the home, even though the married one still plays an important part as older sister. Father's loss of a job and his finding another are poignant events in family life. The death of a loved one and the sense of sorrow over loss— this universal experience in families — tends to bring people together in new ways for comfort and loving support. In such changes and many others, parents as well as children, are constantly developing as individuals; their emotions are ever becoming richer and deeper. As the years pass, their love for their children finds new means of expression, and more and more in their turn they enjoy their children's love. Though in some cases undesirable attitudes may be uppermost, it may happen that parents who feel insecure have the happy experience of learning to love their children and of having their love returned in good measure. Everyone is accessible to the forces of love, if only ways and means may be discovered.

Parents of the Orthopedically Handicapped Child

With the thought of common attributes of all parents in mind, let us consider the parents of the orthopedically handicapped child. First of all, let it be said that they are like any other parents — they are not made different in kind by virtue of the youngster's handicap. They have the same feelings of love, and often some feelings of rejection. Parents who have heretofore been happy and secure will be able to face the facts with fortitude: the situation of handicap offers them opportunity to reaffirm the essence of parenthood — loving care, recognition of the qualities of the child, and at the same time a continuance of their own full life as persons. A recent case in point is that of a young couple who learned from medical authority that their small daughter was not going to be able to walk without brace and crutches. The first reaction of disappointment and despair was followed by gradual unembittered acceptance of the situation and cheerful planning to make the best of it by helping the child to turn to the things she could do well. They would perhaps not be human if they did not feel some hurt, but these parents had a basic quality of love upon which they could build in this time of stress.

On the other hand, many parents, though reasonably secure, go through an experience of continued emotional stress, and even parents well strengthened by love sometimes have misgivings. Worrying over their child's orthopedic condition, they will wonder whether there was something they might have done to prevent it. Feelings of guilt on this score are frequently keen, even when the parents have done the best they could, both before and after the birth of the child, to get competent medical advice and care, and though they have ministered to the young one themselves in the most skillful and loving way.

For most parents it *is* painfully difficult to face the fact that their child has an imperfection. They are apt to think that their son or daughter will surely go further in schooling, in occupation and in attainments of various kinds than they themselves were able to go. The parents of the handicapped child, like most other parents of our society, probably had expected their youngster to fulfill their dreams; hence the handicap is a major assault upon their sense of adequacy.

THEIR CHILD'S HANDICAP

There are many kinds of orthopedic handicap. Some of the common forms are: congenital anomaly, or malformation, cerebral palsy, anterior poliomyelitis, tuberculosis of the bone, osteomyelitis, scoliosis, torticollis, absence of a limb, and muscular dystrophy.

When the child shows some *congenital malformation* parents usually learn of it shortly after the baby's birth. The physician is at hand to advise and reassure the mother and father. Readjustments to the youngster as he is, rather than as they expected him to be, must be made. Relatives have to be told. Possible operations to correct the condition must often be arranged, and it is important that parents realize the necessity of finding specialized authority in which they can place complete confidence. They must realize, too, that the treatment may be a very long and discouraging procedure. After parents have faced such a situation together, there is a new bond between them — a bond which in some indefinable way communicates its existence to the infant, and draws him into the circle of love. This was the case recently when a baby girl was found to have a condition that required operation and the use of casts afterwards for some months. Evidently she felt the full love of her mother's and father's support, for she was cheerful and happy and gave every evidence of feeling secure. But it often happens that the child's condition affects the father or mother in such a way that he or she is not able to love the youngster. Such was the case when a young father learned that the new baby had only one forearm. Troubled already by other matters, he at first refused to look at the baby. In such a plight, parents need help and understanding, a little time to find themselves, and a chance to discover that their youngster has many assets.

When the child is handicapped by *cerebral palsy,* the parents' love is put to a test peculiarly severe. This condition — which is frequently attributed to congenital maldevelopment or birth injury, but may also be the result of later injury or disease — is one of neurological impairment. The child may be a spastic, able to walk only with a scissors gait, knees bent and knocking together, or an athetoid whose arms fly out in random movements when he tries to coordinate and whose face is often contorted in wry grimaces. Or he may be ataxic, uncertain of balance, and fearful of falling. Disabilities are of varying degrees. He may show paralysis of one side, or both sides, or total body involvement. He is likely to be affected in other ways too; his vision, his bearing and his speech may all be impaired. The chances are that he drools. Anyone who assists a child suffering from cerebral palsy knows this multiplicity of related problems. Parents who are confronted with this situation find it hard indeed to meet all the child's needs. They sometimes get discouraged at the slowness of his progress; weeks, months, and even years go by as they watch him struggling to pull himself up, or attempting to use braces or crutch. Often the youngster is quite helpless and is dependent upon his parents to feed him, clothe him and attend to all his other needs. The physical care takes up most of the mother's time, and father's evenings are spent in a round of exacting services for the handicapped one. Often the parents of such a child are devoted to him, but cannot help feeling the restrictions put upon them by his limitations. This was the case with the parents of an only child, a bright-eyed boy of seven, who was found to have cerebral palsy. Though stunned by the sad news, they lost no time in seeking and following the best medical advice. From the beginning, the parents have devoted practically all of their energies to the boy. The mother's days have been spent in an unceasing round of activities — not only in washing his clothes, bathing him, feeding him, taking care of his toilet needs, but also, in addition, in carrying out the exercises prescribed by the doctor. The slow process of either doing things for him, or waiting for him to do them for himself, has often been discouraging. The mother has felt tense and tired. Likewise the father, hurrying home from his office job, has spent most of his evenings constructing equipment in the hope that his boy may learn to use it and be able to walk. He has been so absorbed in these efforts that he has had little time for other pursuits. Recently these devoted parents, finding that their nerves were beginning to be affected by the strain, have taken matters in hand. By skillful engineering they reorganized the necessary activities. They took account of all the things needed in their homemaking and in the special care of the youngster. They then budgeted their time in a flexible schedule. The mother arranged her work in a sequence that saved her energy and left her a little time to rest during the day. The father, too, rearranged his evenings and week-ends. While continuing to construct needed equipment for the boy, he found time for other things as well. To save energy, he worked out a routine for the heavier chores. He took pleasure in painting the kitchen cabinet and the window boxes, and, with the aid of his wife, made some woodcraft pieces for the living-room table. He now enjoys a half hour each evening in telling his son bedtime stories. Recently mother and father had a friend in for the evening, the first guest in many months, and they plan to have others in. Already the home is more relaxed and cheerful, and the youngster, who was beginning to feel rather dejected in the midst of the routines, has spruced up and is showing spontaneous interests of his own.

No less difficult are the problems parents face when their child has *poliomyelitis*. Even though education of the public has done much to forestall exaggerated fears, many parents are greatly alarmed by the mere mention of the word poliomyelitis, and when the diagnosis is definitely made by the attending physician, their anxiety is intense. Thinking of some other child down the street who was completely paralyzed as a result of the disease, they immediately picture their child as similarly affected. The youngster, too, when hurried off, as he is likely to be, to the hospital, suffers a traumatic experience. It is important that while he is in the hospital his spirits should be sustained by the loving care of the people around him, as well as by the knowledge of his parents' continued support and faith. As he gains strength it is indispensable that, even while still in the ward, he begins once again (in so far as this is possible without over-exertion) to do things for himself — putting on his clothes, etc. He should have toys and games that will help him express himself and will develop his independence, and he should have a chance to play with other children.

On his return home, as a rule he faces a period of limited activity, depending upon the amount of involvement. Perhaps he feels insecure as a result of what has happened to him; it is possible that he may have a sense of being rejected by others. In his desire for self-expression he makes a bid for attention, and often gets it. His worried parents try to leave no stone unturned, yet are troubled for fear of spoiling him. It is important that he do things for himself as much as is easily possible. His parents should constantly take account of his normal needs as a person, as well as of his handicap. Whenever there is real love in the home, the problem of the readjustment can be met. But the measures to be taken to meet the child's needs are exacting and time consuming. Follow-up visits to the doctor must be made and expert nursing and therapeutic care obtained; the parents must learn how to do the prescribed exercises and use these to help the child. In many cases the occupational therapist may be of great help. Meanwhile the child, if he is of school age and well enough, is enabled by the home teacher to keep up with his regular school work. These measures take time and play havoc with the family routine.

Take, for example, the case of a little girl of three who had poliomyelitis. She was whisked off to a hospital, a very ill little patient. While in the hospital, though incapacitated in both legs, she was lively. She played with her toys, and colored some pictures with her crayon. She also began to feed herself. She was learning to pull herself up and showed a great deal of independence. Upon her return home, her well-meaning parents began to do everything for her, regarding her and treating her as a baby. Complications ensued when a baby brother arrived. The little girl was upset. Unsure of her place in the family, she played the baby herself and demanded a bottle in her turn when the little brother had one. The parents came to see the situation in its true light. They began to show their affection for her more openly, and encouraged her to do many things which were still possible to her in spite of her handicap. She is now helping herself in many ways and is finding a place for herself in the world.

Parents have serious problems, too, when their child has a marked *postural defect*. He may show the condition by rounded shoulders, head thrust forward, and pronounced stoop. Again, one shoulder may be hiked up while the other sags; or he may show other postural difficulties. In the earlier phases of deviation from good posture, many parents tend to minimize the situation, hoping that the child will overcome it by natural process as he grows older. When the defects persists, however, and his handicap is more noticeable, fear is often felt lest he appear markedly different from others. The problems of parents and child in relation to postural deviations are significant not only because of physical handicap, but also because of possible emotional implications. Why does this youngster show poor posture? Is it his personality, as well as his shoulders, that parents see drooping?

These are but a few of the many problems of parents in connection with their child's handicap. Each parent tends to react in a way consistent with his emotional pattern and his needs, and in accordance with the relationships which he has established with the child up to the time of the impairment. A loving father or mother is able to surmount the obstacles of disablement and profit in spirit by new and perhaps even deeper satisfactions, but it is not easy. A great deal of sympathetic support and understanding on the part of others is needed so that parents may feel encouraged in their own efforts.

Other Children in the Family

Parents of a handicapped child react variously to the idea of having another child. Sometimes, oppressed by a sense of guilt — thinking that perhaps they may be responsible for this child's plight — they are afraid that other children might divert too much of their attention from the unfortunate one to whom, in their opinion, all efforts must be devoted. Other parents look at the situation in a different light; they want to reestablish their own sense of adequacy by bringing another child, non-handicapped, into the world. Still other parents want the handicapped boy or girl to have companions.

In homes where there are already other children, roles may have to be adjusted to take care of the handicapped child. If the parents love all their children, none feels neglected, but exaggerated fears and worries of father and mother are contagious, and non-handicapped children often act up with distress signals to show longing for attention. In a home recently visited, the young mother was so concerned over the condition of her son that she spent most of her time attending to his needs, and the small daughter, jealous of her handicapped brother, began a series of devices — tantrums, lying, thumb-sucking, etc. — to assert her own need for attention and love.

The Parents and Their Neighbors

Many things have been said about neighbors. These folk — who are really all of us — of course, are not a peculiar breed, but a cross-section of human beings in their relations with others. Yet sometimes they have come to be considered as a stereotype of something undesirable — as a force which threatens. On the other hand, there is also the stereotype of the good neighbor, who assists in times of illness or loss.

As a rule, parents of the orthopedically handicapped child feel something particularly poignant about the relations with neighbors. Time and again, one finds entries in records: "Mother was ashamed to take the boy down on the street because of what the neighbors would say", or "The parents did not take her to the park on Sunday because neighbors would stare". Again, "Father walked a little ahead of mother and the boy when they passed the neighbor's house". These situations exist, even in a large city where relationships might be thought to be less personal.

Possibly the curiosity of the neighbors is a relic of an old folkway — attitudes hostile to the different, to the strange, and to the cripple. Though warm-hearted in emergency, neighbors find it hard to greet parents and their handicapped child in a matter-of-fact way. Then, too, parents themselves carry over some of the old-time attitudes about the cripple and thereby tend to intensify the neighbors' reactions. To them, as well as to the neighbors, there is something incongruous about trundling a ten-year-old girl in a baby buggy, even though this may be the only way they have to take the young one with them. And even when they have the latest equipment, provide the most modern prosthetic devices for their child, and dress him up in a beautiful suit, the situation is still painful to many parents.

THEIR CHILD AND THE SCHOOL

The matter of sending a handicapped child to school presents a number of difficulties. Society expects children to go to school, and entering a child there at the appointed time is obligatory. Moreover, most parents in our society want their child to have the equivalent of what they had in schooling, and the chances are that they want him to go further, and do even better.

With this in mind, one considers the problem of the parents of the orthopedically handicapped child. The youngster's handicap may have kept him out of school, and, though efforts were made to give him expert home instruction, he may be several years retarded on entering. He has problems in keeping up and in getting ahead in his classroom work. There are other aspects, too; his appearance is often different from that of the other boys and girls at school. He may need to wear braces, and even though the parents buy him long trousers, these are not entirely successful in hiding the brace or artificial limb; he complains that the other children make remarks about him. Another issue, also, is the matter of placing him in a special class for orthopedically handicapped children. Many schools, because of fire laws and possible danger to the child and others in an emergency, require the child to attend a class for crippled children. In doing so, they offer many advantages, but often the child feels too different in a special class, and parents do not want him to be with other handicapped children. Hence he fails to benefit by the situation and his parents spend much time appealing to school authorities to relax their rule to permit him to enter the regular class. This failing, they try to obtain a home teacher once again, so that the youngster — and they themselves— may be spared the painful emotions connected with his going to school.

It is also true, however, that a great many parents regard the school experience as something pleasurable; it enables their child to be with other children and to be like other children. They buy his school bag, and get him ready for the school bus with deep satisfaction. For them, here is one real way to triumph over physical limitations.

WHAT CAN BE DONE

Throughout these pages we have seen the predicament of parents in relation to their handicapped child. Yet it is believed that things need not necessarily be this way. Through mental hygiene much can be done to help them meet the issues. To this end some suggestions for parents are sketched below:

1. *Accept the situation* of the child's handicap. The handicap exists as a reality; hence one must face it as it is.

2. *Obtain a careful diagnostic statement* from recognized orthopedic and pediatric physicians, respectively, and remain under their care, rather than shift from one doctor to another. Also obtain a diagnosis and any needed treatment from ophthalmologist and dentist. *Obtain a careful prognosis* based upon all the findings as related to each other. Find out about long-range as well as short-range prospects.

3. *Obtain supplemental services* for the child, such as assistance from psychiatric and mental hygiene clinics. Include vocational tests. The combined findings from physical and psychological clinics give a rounded picture.

4. *Build up the youngster*. Whether he is bed-bound or less severely handicapped, walking with braces, crutch, or other assistance, see the young person, rather than the handicap. Help him to develop his assets. Find out his interests; his choice of radio and television programs; his favorite airs on the victrola; his favorite toys and games; the pets he likes. Help him to find ways of developing his present interests and of exploring new interests — things to do, and places to go if he is able to make an excursion. Find out what things other children of his age enjoy, and adapt these.

Help him to have a spot in the house that is his own. Provide him with opportunities to do things for himself. Let him have a share in such family tasks as he is able to do, and let him have a part in the family planning.

Let him be away from the family sometimes. Everyone needs a change; new faces and different happenings help to relieve boredom. Even if he can go only a block with a grown-up, to the store or post office, he may enjoy the trip. Camp is an excellent experience for many children who are physically able and ready for it.

5. *Build up parents themselves*. Parents are *persons*, too. It is important that they have the opportunity for growth and development. Both parents must watch their own health — obtain periodic health examinations, and attention for any particular malady.

It is most valuable for mother, as well as father, to have some other interests beside the interest in her handicapped child. Engrossed in daily routines, what enjoyments can she find to give her a lift? What are some of the things she used to do? Which of these would she like now? She might enjoy a play with her husband or an old friend; a visit to a broadcast; a lecture at a museum; an hour at a swimming pool; folk dancing or ballroom dancing with her husband; a visit to an art gallery; a course of lectures on something of special interest to her, whether English literature or interior decorating; country sports if they are available. None of these diversions is too expensive. She can probably find some responsible person for an hour or two, and will no doubt return to her tasks refreshed.

As for father, he will do well to remember that he has his own needs for growth and self-development. Within a few blocks of the average city home, or a few miles from the house in the country, there are many opportunities for entertainment or education. Perhaps there is some regular evening session that would interest father, or he might attend special forums and lectures free. If he prefers to relax at home, he should be left free to follow his fancy without feeling that he is neglecting his responsibilities toward the handicapped young one. Let him use his ingenuity to think up and make things that the others in the family can enjoy. His opinion as a person, as well as a parent, is worth heeding.

Mother and father probably enjoy an occasional outing together. Special days that help to cement the bonds of family life should be observed together. These small things do much to reattest the spirit of love and confidence. The parents return refreshed for the exacting routines they must follow in caring for the child, and he benefits by the pleasant atmosphere.

6. *Enjoy the children.* Every child has something to offer to the family group. Try to find the place that each child holds in the group, and help him to feel that he is valuable and wanted. New experiences shared by parents and children in pleasant ways will help to counteract the old painful rivalries and will tend to forestall feelings of jealousy. Let the other children live, too, while giving special thought to the needs of the handicapped youngster.

7. *Encourage relatives* to discover good qualities in the child. They can be very helpful in the building of family morale. Try to understand these kin folk and find the best points about them. Try to eliminate the old stereotypes about "in-laws" and see them as persons with warm and humane feelings.

8. *Accept the neighbors.* Recognize the reasons why they ask questions and show curiosity about the handicapped child. They would probably be as quick to offer help. Try to understand them. If the situation warrants it, become better acquainted on a friendly basis. Let them, too, get to know the child.

9. *Reach out to activities in the community.* The particular activities depend upon the setting, the income of the family, their civic and social interests, their religious attachments. Such endeavors tend to develop a sense of family pride and solidarity — and they keep a family from becoming too ingrown as a result of illness or handicap.

10. *Develop a spirit of cheer and a sense of serenity.* There are many delightful things that happen in the average home. There are little eccentricities, remembered sayings that are the particular property of this family. Everyone can enjoy a good laugh now and then. This cheer grows out of what is best in human relationships — love and trust and the assurance that one is appreciated.

A sense of serenity is something which derives from qualities in the inner self. It is made possible by feelings of being loved and wanted, and by a sense of doing the best one can in a situation. Parents who possess poise and inner calm have something invaluable to offer their handicapped child — this serenity and their love.

WHAT THE PUBLIC HEALTH NURSE CAN DO

The nurse carries with her professional skills which are reassuring to anxious parents. She makes use of the foregoing mental hygiene principles, always stressing the normal rather than the abnormal. Her pleasant manner, her acceptance of the realities of each situation as she finds it, her own poise and sense of serenity are of inestimable importance to parents and child. As far as possible she must divest herself of fixed attitudes about the propriety of behavior, ascertain as well as she can the reasons for the behavior and refrain from passing judgment, even in her own mind, upon the parents' manner of attacking their problems. In this way, in cooperation with workers in allied fields, she is often able to bring to bear upon the situation the wealth of resources which are her particular equipment. Her accent is upon the optimum in nursing care for the child, and her services include the supervision of both physical and mental health of the child and his family. Her belief in the assets of the child and his parents can do much to help them reaffirm their faith in themselves.

CONCLUSION

From the beginning of the pamphlet we have seen that the problem of parents of the orthopedically handicapped child is much the same as the problem of all parents today. In our modern society, the roles of members of the family are changing and often ill-defined. There is some confusion as to the part that family members play in relation to each other. The parents of the orthopedically handicapped child show some of the same confusions as any other parents, but their problems are increased by the difficulties of adjustment to the condition of their child — difficulties which make an attack upon their sense of security and adequacy.

We have taken note of many ways by which parents can help themselves. We have also seen how the nurse can play an important part by her reassuring attitude and measures. Many others, too, are aiding, and it is conceivable that the time will come when the public at large will accept wholeheartedly the thesis that parents of the orthopedically handicapped child, and the child himself, are fundamentally the same as other people.

STANDARDS RECOMMENDED FOR THE HOSPITAL CARE OF CHILDREN WITH ORTHOPEDIC HANDICAPS*

The standards described in this material were developed with the assistance of two advisory groups:

1. The Orthopedic Advisory Committee to the Commissioner of Health.
2. A technical advisory committee appointed by Dr. Philip D. Wilson, Chairman of the Orthopedic Advisory Committee and made up of persons from the Orthopedic Advisory Committee and other experts in the field.

Thus, the experience and skill of the many specialties that contribute to the rehabilitation of children with orthopedic handicaps have been used in the formulation of these recommendations.

These standards were developed chiefly as a guide for those hospitals which wish to be approved for payment under the State aid program of the Bureau for Handicapped Children of the New York City Department of Health. However, these advisory groups and the Department of Health feel that they may also be useful to any hospital caring for children with orthopedic handicaps.

Consultants from the Bureau for Handicapped Children are available on request to assist any hospital in meeting these recommended standards.

DEFINITION

A child with an orthopedic handicap is defined as a child who has deformity or disturbed function of bones, joints, or motor apparatus.

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Medical Staff and Policies

1. The hospital should be approved by the Council on Medical Education and Hospitals of the American Medical Association for the training of residents in orthopedic surgery and pediatrics.

2. The hospital should be approved by the Joint Commission on Accreditation of Hospitals.

3. Consultation service from the fields of neurology, psychiatry, otology and ophthalmology and other medical specialists when necessary should be readily available when indicated.

4. Physical examination on admission or shortly after admission should be performed and recorded by both the orthopedic and pediatric staffs. Daily rounds should be made by members of both staffs. At the discharge examination, arrangements should be made for adequate orthopedic and pediatric follow up and care, including home nursing and physical therapy.

5. Periodic staff conferences should be held at least once monthly and preferably weekly to review the course of the patients on the service. The orthopedic and pediatric staffs should be expected to attend, and participate in conferences; nurses, medical social workers, therapists and other professional workers where indicated should be invited to attend and participate.

Nursing Staff

1. The children's orthopedic service should be under the supervision of a competent registered professional nurse licensed in New York State who has had advanced education or special experience in orthopedic nursing and preferably also in pediatric nursing.

2. The operating room suite should be under the supervision of a competent registered professional nurse who has had special training in operating room management, with an adequate number of assistants and other personnel.

3. One registered professional nurse should be on call in the operating suite and available in the children's orthopedic service at all times.

4. There should be one member of the nursing staff (registered nurses and auxiliary staff such as practical nurses, nurses aides, etc.) on duty for every 8 patients during the day, and one for every 30 during the evening and at night.

5. All non-professional nursing personnel assigned to nursing should work under the supervision of a registered professional nurse at all times.

Department of Physical Medicine

The hospital should have a department of physical medicine and rehabilitation under the direction of a physician certified by the American Board of Physical Medicine and Rehabilitation. This department will include physical therapy and occupational therapy.

Physical Therapy.

1. At least one qualified physical therapist should be provided for every 15 orthopedically handicapped children requiring physical therapy. The physical therapists should be graduates of schools of physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association and meeting requirements of licensure by the New York State Department of Education.

2. Adequate space should be provided for the various physical therapy modalities.

3. Adequate records should be kept and a progress report should be included in the patient's unit record.

Occupational Therapy.

1. The hospital should have an occupational therapy department, under the direction of a qualified occupational therapist. The occupational therapist should be a graduate of a school of occupational therapy approved by the Council on Medical Education and Hospitals of the A.M.A.

2. There should be one occupational therapist for each 20 orthopedically handicapped children requiring occupational therapy.

3. Adequate records should be kept and a progress report should be included in the patient's unit record.

4. Space should be provided for the various occupational therapy activities.

OTHER DEPARTMENTS

Nutrition Department.

1. Each hospital should have a nutrition or dietary department under the direction of a qualified nutritionist or qualified dietitian. All food served to orthopedically handicapped children should be selected and prepared under the supervision of a qualified nutritionist or qualified dietitian, in accord with the needs of the individual children.

Qualified nutritionist is any person who has been graduated with a Bachelor's degree in home economics from an institution of learning approved by the University of the State of New York and has had at least 2 years' experience as a nutritionist in a health or welfare agency; or who has received a Master's degree in nutrition and has had at least one year's experience as a nutritionist in a health or welfare agency; or who has had the equivalent of such training and experience.

Qualified dietitian is any person who has been graduated with a Bachelor's degree in home economics from an institution of learning approved by the University of the State of New York and has had an interneship as a dietitian in a hospital approved by the American Dietetics Association, or who has had the equivalent of such training and experience.

2. Facilities should be provided for the proper preparation, storage, refrigeration of foodstuffs, transportation of food, dishwashing and garbage disposal.

3. Daily menus of food served to patients on the children's orthopedic service should be kept on file for a period of at least one month.

4. Separate facilities should be provided for the proper preparations of infant formulae.

Laboratory Department.

1. The hospital should have a Laboratory department under the direction of a pathologist certified by the American Board of Pathology in clinical pathology with facilities to perform chemical, bacteriological, hematological, and pathological services. The laboratory should be licensed by the Department of Health in accord with Section 103 of the Sanitary Code. An adequate number of technicians recognized by the Registry of American Society of Clinical Pathologists should be provided to meet the needs of the patient case load.

2. The hospital should have a supply of blood on hand or facilities to obtain it at all times.

X-ray Department. The hospital should have an x-ray department under the direction of a roentgenologist, certified by the American Board of Radiology, with facilities to perform radiographic services and render suitable written reports. The X-ray Department should be licensed by the Department of Health in accord with Section 107 of the Sanitary Code. An adequate number of technicians recognized by the American Registry of X-ray Technicians should be provided to meet the needs of the patient case load.

Anaesthesia Department. The hospital should have an anaesthesia department under the direction of a physician certified by the American Board of Anesthesiology. Only trained and qualified physician or nurse anaesthestists should administer anaesthesia to such patients as require operative surgery.

SOCIAL SERVICE

1. The hospital should have a social service department which meets professional standards. A full statement of standards may be found in a *Statement of Standards to be Met by Social Service Departments as Set up by the American Association of Medical Social Workers* (1949 revised edition). See also statement of *Personnel Practices* pamphlets prepared by the American Association of Medical Social Workers.

2. *Qualifications*:

A. *Case Worker.* Completion of a full graduate curriculum in social case work in an accredited school of social work; in addition, must be working under supervision of a qualified social work supervisor or have worked two years in a social service department of acceptable standards in a medical setting under the supervision of a qualified supervisor.

B. *Supervisor.* Same educational requirements as above and a minimum of 2 years' full-time paid supervised casework experience in a social service department of acceptable standards in a medical setting. When responsibility for supervision of social casework is carried by a director or a lone worker, the qualifications should be identical for those of a supervisor.

3. *Records.* Adequate records of social casework services to individual patients should be kept according to professional standards (as set up by the American Association of Medical Social Workers). Content of records should

include the analysis of the social problems and statement of the casework services provided. A summary report should be included in the patient's unit record.

4. *Statistics.* Statistics should be kept of individual patients to whom casework services have been given. It is recommended that reports of statistics should be made to the United Hospital Fund in accordance with standard procedures.

5. *Coverage.* Because of the various and complex problems usually met by children who have handicapping conditions, it is important that social casework services be readily available to those children and their families who need and desire service.

6. *Facilities.* Office space should be provided to insure privacy of interviews, conferences, telephoning and dictating. Sufficient clerical personnel and office equipment should be provided to carry on professional functions.

EDUCATIONAL PROGRAM

Provision of educational facilities and staff either by the Board of Education or meeting the standards of the Board of Education should be made for those children of school age.

SERVICE FOR PSYCHOLOGICAL TESTING

The hospital should have or have available service for the psychological testing of orthopedically handicapped children when necessary.

PHYSICAL PLANT

1. The hospital should have a section devoted to the care of orthopedically handicapped children. The hospital should provide for the appropriate grouping of children according to age, sex and individual needs of children.

2. The hospital should conform to all federal, state and local laws relating to fire protection, water supply, sewage disposal, and should have adequate lighting, heating and ventilation.

3. All rooms used for the care of orthopedically handicapped children should have running water equipped with arm, foot or knee control, soap and disposable towels.

4. A minimum of 72 square feet per bed should be provided.

5. Each service for orthopedically handicapped children should have one or more utility rooms equipped with facilities for the emptying, washing and sterilization of bed pans and enema equipment.

6. There should be one toilet for each 8 ambulatory patients, and one shower or bathtub for each 16 ambulatory patients.

7. An adequate plaster room should be provided.

8. An area should be provided for serving of meals and recreation for those children who are ambulatory.

9. There should be adequate equipment to carry out the usual procedures or orthopedic surgical practice.

Policies and Procedures

Every precaution should be taken to insure surgical aseptic technique in the management of patients in the operating room. Every precaution should be taken to guard against explosive hazards in the operating room, according to standards recommended by the American Hospital Association and described in the manual *Combustible Anaesthetics in Hospital Operating Rooms* of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Records. Accurate and complete medical records should be kept, including the following: family and personal history; physical examination; special examinations such as consultations, clinical laboratory, x-ray, pediatric and surgical treatment; progress notes; condition on discharge; plan for medical supervision following discharge, with recommendations for follow up procedures and agency referrals, physician's orders; treatment given; in case of death, autopsy findings. A unit system of records should be kept.

Visiting Hours. Visiting hours should be sufficiently flexible and liberal so that the normal family-child relationship will not be unnecessarily interrupted by the child's hospitalization.

Arrangement with Community Public Health Nursing Agencies. The hospital should have an arrangement with the community public health nursing agency or agencies so that there may be continuity of care between the hospital and the home for both in-patient and out-patient orthopedically handicapped children.

Convalescent Care. Arrangements should be made so that convalescent care will be available for those children who require it. The hospital should have an affiliation or an arrangement with a convalescent facility or use facilities approved by the Bureau for Handicapped Children.

Referral for Vocational Counseling. Arrangements should be made so that children who are in need of vocational counseling may be referred to a vocational counseling agency, such as the Division of Vocational Rehabilitation of the State Department of Education.

Employee Health Policies. Each employee assigned to the care of orthopedically handicapped children should have a pre-employment physical examination, including chest x-ray, and an annual chest x-ray. Each employee with a disease in a communicable form should report it immediately to the Director of the hospital's employee health service, and should be excluded from work until the communicability of the disease is no longer present. Records of the health status of employees should be kept on file within the hospital.

Out-Patient Department

1. The hospital should have an out-patient department which has both an orthopedic and a pediatric clinic with regular and scheduled service. A mem-

ber of the pediatric staff should regularly attend the children's orthopedic clinic.

2. Adequate and properly arranged accommodations and facilities should be provided for the physical comfort and convenience of patients, medical staff, and personnel.

3. The children's orthopedic clinic should be provided with sufficient qualified personnel — physicians, nurses, social workers and clerical assistance to assure proper care and guidance of the patient. Patients accepted for care in the out-patient department should be limited to the number that can be cared for by the professional staff provided.

4. The out-patient and the in-patient records should be combined into a unit system of records; this combined record should be transferred at the time the patient goes from in-patient to out-patient service, or vice versa.

5. Clinical laboratory, x-ray and other diagnostic and therapeutic services of the hospital should be available in adequate amount for the out-patient department.

6. Patients should be seen on an appointment basis. There should be a system in practice for the follow-up of those patients who have broken an appointment.

7. Conferences of the clinic staff should be held at least once monthly and preferably weekly to discuss patient problems, clinic organization, progress in therapy, etc.

AGENCIES FOR THE ORTHOPEDICALLY HANDICAPPED

NATIONAL AGENCIES

American Heart Assn., Inc., 44 East 23rd St., New York, N. Y.
Association for the Aid of Crippled Children, 345 E. 42nd St., New York 17, N. Y.
Bureau of Public Assistance, Social Security Administration, United States Department of Health, Education, and Welfare, Washington 25, D.C.
Canadian Council for Crippled Children, 92 College St., Toronto 2, Canada.
Institute for the Crippled and Disabled, Inc., 400 First Avenue, New York 10, N. Y.
International Society for the Welfare of Cripples, 127 E. 52nd St., New York 22, N. Y.
Muscular Dystrophy Associations of America, Inc., 21 E. 40th St. New York, N. Y.
National Epilepsy League, 130 N. Wills St., Chicago, Ill.
The National Paraplegia Foundation, Broad-Grace Arcade, Richmond 19, Virginia
National Society for Crippled Children and Adults, Inc., 11 South La Salle St., Chicago 3, Ill.
United Cerebral Palsy Associations, Inc., 369 Lexington Avenue, New York, N. Y.

STATE AGENCIES

Alabama: State Department of Education, Division of Vocational Education, Montgomery.
Alaska: Territorial Department of Health, Division of Maternal and Child Health and Crippled Children's Services, Juneau.
Arizona: State Department of Public Welfare, Division for Crippled Children, Phoenix.
Arkansas: State Department of Public Welfare, Crippled Children's Division, Little Rock.
California: State Department of Public Health, Crippled Children's Services, San Francisco
Colorado: State Department of Public Health, Division of Crippled Children, Denver.
Connecticut: State Department of Health, Bureau of Child Hygiene, Division of Crippled Children, Hartford.
Delaware: State Board of Health, Services for Crippled Children, Dover.
District of Columbia. Health Department of the District of Columbia, Bureau of Maternal and Child Welfare, Washington.
Florida: Crippled Children's Commission, Tallahassee.
Georgia; State Department of Public Welfare, Crippeld Children's Division, Atlanta.
Hawaii: Territorial Board of Health, Bureau of Crippled Children, Honolulu.
Idaho: State Department of Public Health, Division of Maternal and Child Health and Crippled Children's Services, Boise.
Illinois: University of Illinois, Division of Services for Crippled Children, Springfield.
Indiana: State Department of Public Welfare, Services for Crippled Children, Indianapolis.
Iowa: University of Iowa, Crippled Children's Services, Iowa City.
Kansas: Crippled Children Commission, Wichita.

Kentucky: State Department of Health, Crippled Children Commission, Louisville.
Louisiana: State Department of Health, Section of Crippled Children's Services, New Orleans.
Maine: State Department of Health and Welfare, Bureau of Health, Division of Medical Services, Augusta.
Maryland: State Department of Health, Bureau of Maternal and Child Health, Baltimore.
Massachusetts: State Department of Public Health, Division of Maternal and Child Health, Boston.
Michigan: Crippled Children Commission, Lansing.
Minnesota: State Department of Social Security, Division of Social Welfare, Bureau for Crippled Children, St. Paul.
Mississippi: State Board of Education, Crippled Children's Services, Jackson.
Missouri: University of Missouri, State Service for Crippled Children, Columbia.
Montana: State Board of Health, Division of Crippled Children, Helena.
Nebraska: State Board of Control, Department of Assistance and Child Welfare, Services for Crippled Children, Lincoln.
Nevada: State Department of Health, Division of Maternal and Child Health and Crippled Children's Services, Carson City.
New Hampshire: State Department of Health, Division of Maternal and Child Health and Crippled Children's Services, Concord.
New Jersey: State Department of Health, Crippled Children Commission, Trenton.
New Mexico: State Department of Public Welfare, Crippled Children's Services, Santa Fe.
New York: State Department of Health, Bureau of Medical Rehabilitation, Albany.
North Carolina: State Board of Health, Division for Crippled Children, Raleigh.
North Dakota: Public Welfare Board of North Dakota, Division of Child Welfare, Bismarck.
Ohio: State Department of Public Welfare, Division of Social Administration, Services for Crippled Children, Columbus.
Oklahoma: Commission for Crippled Children, Oklahoma City.
Oregon: University of Oregon Medical School, Crippled Children's Division, Portland.
Pennsylvania: State Department of Health, Crippled Children's Service, Harrisburg.
Puerto Rico: Insular Department of Health, Bureau of Crippled Children, San Juan.
Rhode Island: State Department of Health, Crippled Children's Division, Providence.
South Carolina: State Board of Health, Division for Crippled Children, Columbia.
South Dakota: State Department of Health, Division of Crippled Children, Pierre.
Tennessee: State Department of Public Health Services for Crippled Children, Nashville.
Texas: State Department of Health, Crippled Children's Division, Austin.
Utah: State Department of Health, Crippled Children's Division, Salt Lake City.
Vermont: State Department of Health, Crippled Children's Division, Burlington.
Virginia: State Department of Health, Bureau of Crippled Children, Richmond.
Virgin Islands: Insular Department of Health, Services for Crippled Children, Charlotte Amalie, St. Thomas.
Washington: State Department of Health, Maternal and Child Health and Crippled Children's Section, Seattle.
West Virginia: State Department of Public Assistance, Division of Medical Services, Charleston.
Wisconsin: State Department of Public Instruction, Bureau for Handicapped Children, Crippled Children's Division, Madison.
Wyoming: State Board of Health, Division of Maternal and Child Health and Crippled Children, Cheyenne.

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Bulletin International Society for the Welfare of Cripples, 127 E. 52nd St., New York 22, N. Y.

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ADDITIONAL REFERENCES

SECTION IV

CHAPTER VII

THE CARDIOPATHIC-RHEUMATIC FEVER

THE CARDIOPATHIC-RHEUMATIC FEVER, BY LILLIAN ROSENSON AND BEATRICE SCHENK DE REGNIERS

EMOTIONAL IMPLICATIONS OF RHEUMATIC HEART DISEASE IN CHILDREN, BY IRENE M. JOSSELYN

CARDIAC ADOLESCENTS, BY MALCOLM D. McQUILLAN

WHEN CHILDREN ARE CONVALESCING FROM RHEUMATIC FEVER, BY JEANNE KININGHAM IGERSHEIMER, CHARLES H. CROTHERS, AND ROBERT B. KUGEL

OCCUPATIONAL THERAPY FOR RHEUMATIC AND CARDIAC CHILDREN, BY MICHI YASUMURA AND JANET S. BALDWIN

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE CARDIOPATHIC-RHEUMATIC FEVER

LILLIAN ROSENSON AND BEATRICE SCHENK DE REGNIERS

Heart disease in children is a major health problem and demands the attention of teachers, school administrators, and school health personnel. It is estimated that one in every hundred children of school age has rheumatic fever, rheumatic heart disease, or a congenital heart defect. Rheumatic fever and rheumatic heart disease alone cause more long-time disabling illness in children than any other disease.

Development of preventive measures for rheumatic fever and of remedial surgery for various congenital heart defects has given impetus to case finding and points up the responsibility of school personnel in both casefinding and management of the cardiac and the rheumatic child.

Rheumatic Fever and Rheumatic Heart Disease

Rheumatic fever and rheumatic heart disease account for about two-thirds of all heart diseases in children. Rheumatic fever may affect any part of the body. Most physicians agree that during the acute phase of rheumatic fever the heart is always affected. In addition, the joints, blood vessels, skin, or central nervous system may be temporarily involved.

The threat of rheumatic fever lies in the possibility of permanent damage to the heart. After the first attack of rheumatic fever, two out of three patients are left with some heart damage. Often the effect on the heart may be so slight that little or no adjustment is required in the patient's school or home routine. However, the possibility that the heart may become less efficient in middle adult life has implications for vocational guidance while the child is in school. Sometimes the signs and symptoms of heart damage are not evident at first, but develop gradually later in life. In other patients, the signs of heart damage may gradually disappear. The greatest danger to the heart in rheumatic fever comes from repeated attacks of the disease. Unless preventive measures are taken, rheumatic fever has a tendency to recur again and again.

And each new attack brings a new opportunity for permanent damage to the heart.

The Nature of Rheumatic Heart Disease. It is this permanent injury to the heart, — a legacy of rheumatic fever, — that constitutes rheumatic heart disease. Just how is the heart affected?

When rheumatic fever leaves the heart permanently injured, the injury is usually the result of inflammation of one or both of the valves on the left side of the heart. As the inflammation subsides, the valve heals by means of a scar, which leaves it roughened and sometimes deformed. This deformity may prevent the valve from opening or closing properly and so interfere with normal blood flow. Or the valvular opening between the upper and lower chambers of the left heart may become narrowed (stenosed). Sometimes the rheumatic process leaves the heart muscle permanently damaged or involves the protective membrane (pericardium) which encloses the heart.

Very often the rheumatic heart disease is so slight that the child is not hampered by it and is permitted normal or nearly normal activity. These children, as well as those who recover from rheumatic fever with no sign of heart damage, should be under medical supervision in order to prevent further attacks of rheumatic fever, but *their activities should not be unnecessarily restricted.* As the condition of the child's heart changes, the physician will allow more or less activity. In some instances, damage to the heart valves can be remedied by surgery. But our greatest hope for protecting children's hearts lies in early treatment and, even more important, prevention of rheumatic fever.

The Natural History of Rheumatic Fever. What is the nature of the rheumatic fever that so often leaves its mark upon the child's heart? (Adults may get rheumatic fever too, but it attacks particularly children of school age.) *Rheumatic fever is a disease of long duration.* It is often described as an insidious infection because it is sometimes difficult to recognize. There is no single specific test for diagnosing rheumatic fever. And once it is diagnosed it is not easy to know when an attack of rheumatic fever has ended because of its tendency to smolder and then suddenly to flare up in a more acute form.

Rheumatic fever is a recurrent disease. One attack leaves the child more vulnerable than ever to new attacks unless protective measures are taken.

Rheumatic fever may affect connective tissue throughout the body. However, its effect on joints, blood vessels, skin or the central nervous system is temporary. It is the effect on the tissues of the heart that may be serious and long-lasting.

Although the direct cause of rheumatic fever has not yet been discovered, it is known that certain types of infection (with Group A hemolytic streptococci) act as a 'time bomb' that sets off the rheumatic infection in a susceptible individual. The 'strep sore throat' is the most common streptococcal infection that may be followed by rheumatic fever. Scarlet fever and otitis media (middle ear infection) also belong to this category. An illustration of the three main phases in the development of rheumatic fever may make the relationship clearer.

First, the youngster has a sore throat. This particular sore throat happens to be a strep infection.

During the next period, averaging one to four weeks, the youngster seems to have recovered.

The third phase, — that of acute rheumatic fever, — may last for weeks or months. Its onset may be characterized by fever and severe joint pains, or it may be so mild as to go unnoticed. The child may seem tired, pale, restless, — a bit under par.

Warning Signals. While rheumatic fever has no symptoms all its own, there are a number of warning signals that teachers should be alert to notice and to report to the school health service or to the child's parents. The signs and symptoms listed here will not enable a teacher or nurse to diagnose rheumatic fever, but they do serve notice that the child who shows them is under par and should be examined by a physician:

Failure to gain weight
Pallor
Frequent colds and sore throats
Unexplained nose bleeds
Pains in arms, legs, and joints (Joint pains of rheumatic fever usually occur during the day on weight bearing.)
Unusual restlessness, irritability, twitching or jerky motions
Behavior and personality changes
Poor school work by a child who has previously done well

Bed rest is prescribed until, after weeks or months, the rheumatic infection dies down. Hormone substances like ACTH and cortisone, and salicylate drugs like aspirin may be prescribed to relieve symptoms.

Not every strep throat leads to rheumatic fever. In the general population about 3 to 10 per cent of strep infections of this nature result in rheumatic fever. For those who have had a previous attack of rheumatic fever, strep infections are much more likely to bring on a new rheumatic fever attack.

Prevention of Rheumatic Fever. Here then, in the relationship between the group A hemolytic streptococcal infection and rheumatic fever, lies the key to prevention of rheumatic fever and rheumatic heart disease.

The Committee on Prevention of the Council on Rheumatic Fever and Congenital Heart Disease of the American Heart Association has outlined a double defense against rheumatic fever:

1. Long-term medication to prevent streptococcal infections in those who have had rheumatic fever.

2. Prompt and thorough treatment of streptococcal infections in all children.

Why should the child who has recovered from rheumatic fever be put on a long-term, preventive regimen?

We have seen that the child who has once had rheumatic fever is much more vulnerable than other children to a repeat attack of rheumatic fever as a result of a strep infection. Some studies have shown that as many as 50 per cent of strep infections may result in rheumatic fever in these individuals.

Not every streptococcal infection makes its presence known. Therefore physicians prescribe small regular doses of the sulfonomides or of penicillin in order to protect the rheumatic child from 'silent' strep infections as well as from those that show themselves by means of signs or symptoms. Some physicians prescribe a daily tablet of the preventive drug; others advise monthly injections of long-acting penicillin. Either method works so long as the medication is given without fail, the year round.

If by any chance a child on this preventive regimen *should* get a strep infection, then he is given large doses of penicillin to eradicate the infection.

The second defense against rheumatic fever, — the prompt and thorough treatment of streptococcal infections in all individuals, — poses a number of practical problems. Are parents or teachers to report any and every sniffle or sore throat to the doctor? This is obviously not feasible. A list of seven key questions has been drawn up by the American Heart Association as a guide to when to call the doctor and what to tell him about a child's sore throat. On the basis of the answers to these questions, the physician can decide if he should examine the child for a streptococcal infection.

1. Did the sore throat come on suddenly?
2. Does your youngster complain that his throat hurts most when he swallows?
3. Does it hurt him under the angle of his jaw when you press there gently with your fingers? Are the glands swollen there?
4. Does he have fever? How much? (Usually a strep infection brings on fever between 101 degrees and 104 degrees.)
5. Does your child complain of headache?
6. Is he nauseated? Has he vomited?
7. Has he been in contact with anyone who has had scarlet fever or a sore throat? (Any child who has been exposed to scarlet fever should see his doctor for preventive treatment, even if he does not have a sore throat.)

In addition, in many communities the schools, in cooperation with local health departments and heart associations, are setting up rheumatic fever preventive programs. Although the details of the procedure vary from school to school, a basic element of the program is the emphasis on control of streptococcal infections.

Another practical problem is education of the parent to the need for thorough eradication of the strep infection. Sometimes, instead of giving a long-acting injection, the physician prescribes tablets to be taken orally; usually, after a few days, the child appears to have recovered. Unless the child's mother understands the importance of keeping up the level of penicillin in the blood over a ten-day period, she is likely to discontinue the tablet after a few days.

Teachers and parents are sometimes concerned that the child on long-term therapy will become a hypochondriac. If the child is not overprotected, if teachers and parents permit him the full quota of activity the doctor allows, then there is little danger that taking a daily tablet will turn a child into a hypochondriac. The whole matter can be handled as routinely and unemotionally as seeing that a young child takes his cod liver oil or brushes his teeth regularly.

The combined efforts of school personnel, parents, physicians, and community agencies in a preventive program should succeed in making rheumatic fever a rare disease.

CONGENITAL HEART DEFECTS

Advances in heart surgery have focussed attention on the child who is born with a congenital heart defect. Formerly nothing could be done for him. Now, every year brings new advances in heart surgery, so that a child who appears doomed today may be reprieved tomorrow — or next year — by a new development in surgical techniques.

Meanwhile, it is important for teachers as well as parents to be aware that not every child with a congenital heart defect can benefit by an operation.

There are many kinds of congenital heart defects, ranging in severity from the abnormalities so trivial that they in no way affect the child's life to anomalies so severe that they are not compatible with life.

When a teacher has in her classroom a child with a known congenital heart defect, her first thought may be to restrict him so that he will not become overtired. Doctors agree, however, that most children with congenital heart defects limit their own activity as necessary. Those who tire most easily just naturally slow down and do not usually have to have restrictions imposed upon them. Since each case is individual, the child's physician should be consulted and his recommendations as to activity should be followed. The physical education program may be modified if the physician so advises. As with the rheumatic child, unnecessary restriction on his activity can be psychologically harmful. *Every child has the right to live as normal a life as possible.*

When a child returns to school after a successful operation for a congenital heart defect, the teacher should get the doctor's recommendation for activity. Usually, even when surgery has completely corrected the defect, the physician will not want the child to take part in very vigorous exercise until three months after operation. Some children whose condition is improved rather than cured by surgery may require a few limitations. In general, after the convalescent period is over and the child has completely recovered, the teacher's greatest problem will be to accept the fact the the child is now a healthy youngster who requires no more protection than any other boy or girl in her classroom. Once the teacher accepts this fact, she can do much to help the child and his parents adjust to the child's new health status.

SUB-ACUTE BACTERIAL ENDOCARDITIS

Although bacterial endocarditis is a rare disease, physicians take special precautions to protect rheumatic patients or those with congenital heart defects against it.

This severe infection can occur as a complication of rheumatic heart disease or of a congenital heart defect. Any break in the gum or other mucous membrane can open the way to certain bacteria that have an affinity for the site of previous heart damage. To protect the rheumatic or congenital heart patient against this infection, physicians prescribe penicillin before and after operations that require a break in the mucous membranes, — tonsillectomies or oral surgery, — or any dental manipulation that is likely to break the gum.

Functional and Therapeutic Classification

Most diagnostic referral forms used in clinics or in school health services employ the standard classification developed by the New York Heart Association and distributed by the American Heart Association. The functional classification represents an estimate of the patient's response to effort. For example, if ordinary physical activity does not cause him undue fatigue, his functional classification would be Class I.

Therapeutic classification represents the physician's recommendation as to the amount of activity the patient is permitted. For example, a child with active rheumatic fever may not experience fatigue or discomfort on playing baseball, yet he must stay in bed while the rheumatic carditis is active. He would be rated as Class I E. When the child has returned to school, unless his classification is I A, most teachers will want more detailed guidance as to what restriction should be placed on the child. This is important in order to avoid restricting the child unnecessarily.

The Classification of Patients With Diseases of the Heart*

Class I: Patients with cardiac disease but without resulting limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea or anginal pain.

Class II: Patients with cardiac disease resulting in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea or anginal pain.

Class III: Patients with cardiac disease resulting in marked limitation of physical activity. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitation, dyspnea or anginal pain.

Class IV: Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency or of the anginal syndrome are present even at rest. If any physical activity is undertaken discomfort is increased.

Class A: Patients with a cardiac disease whose ordinary physical activity need not be restricted.

Class B: Patients with cardiac disease whose ordinary physical activity need not be restricted, but who should be advised against severe or competitive physical efforts.

Class C: Patients with cardiac disease whose ordinary physical activity should be moderately restricted, and whose more strenuous efforts should be discontinued.

Class D: Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E: Patients with cardiac disease who should be at complete rest, confined to bed or chair.

No Heart Disease: Predisposing Etiological Factor**

These are patients in whom no cardiac disease is discovered, but whose course should be followed by periodic examinations because of the presence or history of an etiological factor that might cause heart disease. These cases should be recorded as No Heart Disease: Predisposing Etiological Factor and it is essential that the etiological diagnosis also be stated.

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*For complete diagnostic criteria, see *Nomenclature and Criteria*, rev. 1953, prepared by New York Heart Association, distributed by American Heart Association and its affiliates.

**For some patients both diagnoses will apply.

UNDIAGNOSED MANIFESTATION**

Patients with symptoms or signs referable to the heart but in whom a diagnosis of cardiac disease is uncertain should be classified tentatively as Undiagnosed Manifestation. Reexamination after a suitable interval will usually help to establish a definite diagnosis. When there is a reasonable probability that the signs or symptoms are not of cardiac origin, the title Undiagnosed Manifestation should not be used. The diagnosis then should be No Heart Disease.

THE EDUCATIONAL MANAGEMENT OF THE CARDIAC CHILD

When we consider the educational goals and the pattern of development of cardiac and non-cardiac children, we find that the similarities between the two groups are greater than the differences.

Children with physical limitations require the same educational opportunities all children need. Like other children, the child with a damaged heart, for example, needs love, acceptance, encouragement, guidance. Like other children, he must be helped to develop a sense of trust, of belonging, of accomplishment, of sociality and integrity, of autonomy, and of industry.

An effective school health service is essential for all children, whether or not they have heart disease. This service should provide for periodical medical examination and for joint planning of appropriate personnel of the medical and school staff in taking steps to:

1. Provide opportunities for healthful living and prevention of ill health
2. Appraise the health status of each child
3. Plan with the pupil and parent to help the child acquire and maintain his optimum health status
4. Correct remediable defects
5. Develop in each child a positive attitude toward healthful living and a sense of responsibility to build, improve and conserve his health.

In addition to an effective health service, a comprehensive school program will offer:

1. Teachers who are physically and emotionally fit, in whom, in the words of Leonard Mayo, "there resides an effective confluence of the trained mind and the warm heart".
2. Good educational practices based upon sound precepts of child growth and development
3. A healthful environment in which a balanced program of work, recreation, and rest operates in an atmosphere free from tension and strain.
4. Health and nutrition instruction and practices as an integral part of the curriculum.
5. Opportunities for teachers and parents to get to know each other, and to plan together for adjustments in school and home in accordance with the child's needs.
6. Joint planning with parents and others in the community for individual, family and community health.

**For some patients both diagnoses will apply.

The Child's Attitude. The child's feelings about his physical condition are often more important than the condition itself. They are influenced in large measure by the attitudes of those about him. If the child feels that he is loved and accepted, whatever his imperfections, that the extra services necessitated by his condition are given freely and lovingly, he feels liked and respected. He feels good about himself. He accepts himself as he is, with his limitations and strengths.

The bulletin *Helping the Physically Limited Child*[1] points out that:

> From the mental hygiene point of view, a person with a physical impairment is handicapped only to the degree that he cannot cope with the problems which his condition presents. Two individuals with the same physical condition may react in entirely different ways; one may become bitter and unproductive; another coming to grips with his limitations, may set his sights within the realm of realization.

Dr. Frank J. O'Brien, psychiatrist and formerly Associate Superintendent of Schools of the N.Y.C. system, states:

> I think the child can be helped to understand that all of us have some limitations one way or another and it is up to us to help the child accept himself and to really get pleasure and happiness out of what he can do, rather than resenting the things he can't do and strive to do the things that are not good for him. We can help him through the proper development of attitudes very early in life to accept the types of life where he will be happy, where he can be productive and where he will attain his natural life span.[2]

With wise counseling, the child comes to realize the importance of the preventive and therapeutic measures prescribed by the physician and takes an active part in a plan to effect his own health improvement. Instruction in nutrition, proper rest, hygiene practices, periodic medical check ups and outdoor exercise becomes meaningful to him in the light of his own particular needs. The teacher need not be concerned about the child's becoming too absorbed in himself and in his illness if the school provides opportunities for stimulating and interesting experiences and activities.

The Teacher's Role. Very often the child who has had rheumatic fever or who has a congenital heart defect is the victim of unnecessary limitations upon his physical activity. The teacher should consider it her first responsibility to learn whether or not the child's activities need to be limited. She should not take it upon herself to impose restrictions.

The school health service itself has the responsibility of seeing that no child is falsely labeled 'cardiac' just because the school physician has detected a heart murmur.

Most teachers will never be called upon to deal with a cardiac crisis in the classroom. It is highly unlikely that children with rheumatic heart disease or a congenital heart defect who are well enough to attend school will suffer such a crisis. However, if a teacher is faced with such an emergency, she should follow these instructions: Let the child assume the most comfortable position for him. If he is short of breath he will want to sit up, as he will find it difficult to breathe while lying flat. Loosen tight clothing. Give him plenty of air, but protect him from drafts. The teacher's calm attitude will help reassure the child and the rest of the class. If the child has fainted, — and fainting is almost never due to heart disease, — then he should lie down, preferably with his head lower than the rest of his body.

Because teachers are expected to perform screening procedures, opportunities for preservice and inservice education should be offered to students and teachers. Many school systems are now holding workshops, institutes and offering counseling service in which qualified school and school health personnel help teachers to make and interpret health appraisals.

Helping the School Child with Heart Disease or Rheumatic Fever. Although many children who have recovered from rheumatic fever may not need to have their activities restricted, all of them should be watched closely for signs of possible strep infections that may lead to another rheumatic fever attack or for indications that may suggest a flare-up of rheumatic fever. Prompt referral to the school health service or the family physician and follow-up with the parents may be crucial in protecting the child from heart damage.

Because rheumatic fever tends to occur in susceptible families, the teacher and the school nurse should stress the basic principles of healthful living to the child with rheumatic fever and to his parents. These include the need for adequate sleep and rest, a well-balanced diet, good dental care, early treatment of respiratory infections, and periodic medical supervision.

When the school has instituted a rheumatic fever prevention program or where the school health personnel are alerted to the problem, there will be follow-up of each child who has had rheumatic fever to assure that he is on a prophylactic regimen.

Bunn and Bennett[3] report a study by the Youngstown Area Heart Association in which a program was undertaken to prevent first attacks of rheumatic fever. The program began in 1950 with the education of school personnel, parents, nurses and doctors, stressing the importance of prompt detection of streptococcal sore throats and correct treatment. Talks by Heart Association nurses on the project outlined the problem of the prevention of rheumatic fever to the principals and teachers in Youngstown's elementary and junior high schools, and with each school's parent-teacher association. Literature was sent to the parents and a note was given to each child who was sent home because of a sore throat emphasizing the necessity and reasons for adequate penicillin therapy for strep sore throats.

Second, a program was started with a selected group of children aimed at early detection of streptococcic sore throats by examinations and throat cultures and urging treatment of those children whose throat cultures were positive for beta hemolytic streptococci. Although the practicality of the second part of this program was questioned, the study demonstrated the value of a community program for preventing rheumatic fever.

Dr. Bunn and Dr. Bennett in summing up, state that:

> first attacks of rheumatic fever can be prevented by early adequate penicillin therapy in a large percentage of cases if the person with the sore throat can be identified and his physician is aware of the importance of correct treatment. One of the approaches is community education of parents, teachers, school nurses and physicians.

Dr. Gene H. Stollerman, in a recent study at Irvington House,[4] demonstrated that there was evidence of recent streptococcal infection in almost every patient with acute rheumatic fever. It was also indicated that if a new streptococcal infection occurs while the rheumatic process is still active, it may provoke exacerbation of rhuematic fever. The protection of the patient from new infection and the prompt eradication of streptococci from the throat at the inception of the disease is important. Proper diagnosis and treatment, Dr Stollerman states, may reduce prevalence of streptococcal infections and this could be reflected in a significant decline in the incidence of rheumatic fever.

Dr. Stollerman summarizes that the incidence and morbidity of the disease can be reduced by early diagnosis and proper therapy of streptococcal disease and by diligent protection of rheumatic subjects from streptococcal infection.

THE EDUCATOR'S DILEMMA

Should a child with heart disease be in a regular class or a special class, or should he be taught in the home by a visiting teacher? These are questions with which educators and others interested in the child's total adjustment or personality development are increasingly concerned. They know that every child wants to be like other children. Indeed, children abhor being different and the physically limited child is no exception. How then to provide a school environment, individual instruction, special services and measures which the child may need, yet help him to feel a part of the regular school program?

Most children who have completely recovered from rheumatic fever, even those with a slight heart condition, do not require special adjustment of their class schedules. For children with greater heart damage, allowances must be made. If the child has had continuous home teaching during his convalescence, he will be better prepared educationally to join his classmates in the regular classroom. Whether the required adjustments can be made in the regular class schedule depends upon the physical facilities of the school, the size of the classes, and other factors.

Dr. Romaine Mackie, Chief of Special Education, Department of Health, Education and Welfare, makes the point that it is possible that a child might profit less from being in a regular class where he cannot possibly compete satisfactorily than in a special class, where the program is geared to his limitations.

There can be, however, no blue print. Two children with the same amount of heart disease or recent history of rheumatic fever may need different educational treatment. Environmental, emotional and social factors in addition to the purely physical must be considered.

Dr. Wrightstone, in his *Study of the Child with Cardiac Limitations,* makes the following recommendations:

> 1. The placement of a child in a special class should be the responsibility of a diagnostic and evaluate team consisting of the physician, psychologist, social worker, principal, and the school the child attends. Psychiatric consultation should be obtained if indicated.
>
> 2. The retention of a child in a special class should be considered by the team at least once each year after consultation with the child's teacher and parents.[5]

Although most small communities do not have the specialists available to the city schools, the principle of team work still holds. In a rural school, the team will consist of the family physician, the parent, the principal, and the teacher.

Flexible Placement Schedule. Dr. Wrightstone emphasizes the short-term placement of pupils in special classes.

As the child's medical status changes, his program changes, too. It is generally agreed that adjustment should be in the direction of the regular full-time regimen. A short time in the special class for the child who has recently recovered from an operation or a rheumatic fever attack may help him to adjust to the regular program. Similarly, transfer from home instruction to regular class may require a limited time in the special class to orient and adjust the child to school life.

Integration versus Isolation. The special class need not be an isolated one. It should and must be an integral part of the school. Flexible administrative procedures will enable the child in a special class to share many activities with children in the regular classroom.

Experience has demonstrated that some of the restrictions formerly placed upon the child with heart disease can be relaxed. Where physical facilities are favorable and medical approval is given, access to special areas of instruction and participation in general school activities should be encouraged.

Minimum essentials of the integrated program are:

1. Physically limited children are given the same opportunities as other children in the school, as for example, participation in assembly programs, school projects, clubs, field day, science and nature room activities, gardening, shop work, home economics. In one school of 1700 pupils, children in the two health conservation classes take responsibility for publishing the school newspaper, spearhead Red Cross activities, and take care of collections and prepare health and safety exhibits for the school.

2. Teachers of special classes are given the same opportunities as other teachers. For example, supervisors, curriculum assistants, guidance and health counsellors, and consultants in subject areas, assist these teachers as they do other staff members.

3. Pupils and teachers in special classes are included in the social activities of the school, such as holiday celebrations, park fetes, bazaars, pageants, and the like.

4. Special class pupils participate in the same physical education program as others, limited only by medical restrictions. Adaptations and modifications of games, game skills and dancing are arranged by alternating active and sedentary activities, simplifying figures of a dance, limiting the number of variations.

5. Inter-class visits are arranged so that physically limited pupils can become acquainted with their age and grade peers.

6. Periodic medical supervision and conferences of school health service personnel assure that the pupil is kept in the special class only as long as necessary.

7. To assure continuity of education and of care, teachers of the special classes meet with the regular classroom teachers whenever a child is about to be transferred from the special class. If this is not possible the special teacher communicates the necessary information by phone or written report.

Sharing with Parents and Others in the Community

In order to plan a sound educational program for the child with heart disease, — as for any child, — we must know a great deal more about him than we can learn by watching him in the classroom. A great deal will depend upon the extent to which the school personnel understands the effect upon the child of such experiences as frequently recurrent sickness and long-term hospitalization, and such factors as family relationships, economic conditions, and the like.

This concept of the child as the total of all his experiences is not a new one, nor is it confined to educators. In 1855 Walt Whitman wrote:

> There was a child went forth every day
> And the first object he looked upon
> That object he became
> The early lilacs became part of this child
> . . . . and the phoebe bird . . . .
> The mother at home, quietly placing dishes
> on the supper table
>
> The family usages, the language, the furniture —
> the yearning and swelling heart
>
> Affection that will not be gainsay'd — the sense
> of what is real — the thought if, after all,
> it should prove unreal
> The doubts of day-time and the doubts of
> night-time
>
> These became part of that child who went forth
> every day, and who now goes and will always
> go forth every day.

And today, a hundred years later, we know that in order to reach the child, to plan his education, we must know him as he is and as he "goes forth every day." We must think in terms of down-to-earth planning based upon an intimate study of each child, in his school, his home, and his community.

Many schools realize the importance of parents' opinion, attitudes and understanding about the schools their children attend. Teachers welcome parents into the school, share information about the child and plan with the parents for his welfare. In schools in which human relations are valued and flexible administration prevails, the teacher is allotted time to become acquainted with the parents, to learn about the home situation and the daily life of the child during out-of-school time. With mutual exchange of information, the child's curriculum can be planned cooperatively and special measures to help him can be undertaken.

The teacher should understand how feelings of guilt about a child's inadequacies can lead parents to over-protect a child or to reject him. When parents reject a child, they are likely to reject the special services that the child needs.

Teachers who understand this will seek to learn the parent's reactions, whatever they may be, and will help them to accept the child and whatever measures are necessary to help him.

Problems concerning curriculum adjustment can be worked out best when parents are invited to visit the classroom to observe the class program in relation to the child. If a special class is recommended, the parents should have an opportunity to observe the special class in action.

At times, however, particularly when the child will need special protection and services over a long period of time, a parent may need the assistance of a counseling service.

Kanner[6] emphasizes the need for parent education in relation to prevention or to exacerbation of physical or emotional anomalies. This is particularly applicable to the child with a history of rheumatic fever and/or a cardiac condition. These principles are stated:

1. Prevention is practiced by maintaining health, not by agitations intended to avert disaster projected into the future.

2. Parents must emphasize the sensitiveness of children, the sources and affects of anxiety, frustration and resentment, the warping results of coercive or overprotecting interference with the difficult struggle for a sense of identity.

3. Accepted children have a better opportunity for healthy personality formation than unaccepted children.

4. Accepted children are more apt to become accepting parents than unaccepted children.

These principles all converge, he states, on the same fundamental issue: genuine parental fondness, devoid of overprotection, coercion, or any other type of agitated curbing of a child's quest for growth and spontaneity, is the corner stone of preventive mental hygiene. Teachers, too, must be aware of the factors which foster growth and development and engender the sense of autonomy which is basic to wholesome, happy living.

Education in and after the Hospital

Nurses and doctors report the therapeutic effect of a teaching program in the hospital. Individual attention and instruction tend to reassure the child concerning his school work and to bridge the gap between the home and school and the hospital. Group activities for ambulatory patients in a room set apart for the purpose or in a corner of the ward provide opportunity for social experiences as well as for instructional activities. A variety of materials and experiences provides rich educational content and emotional release. Some activities which teachers report have helped children to adjust to hospitalization and prepared them for return to school are: (1) music, singing, dramatic play, puppet manipulation, working with clay, paint, and wood; (2) opportunities for radio and television programs; (3) developing a newspaper which serves as a link with folks at home and schoolmates; (4) corresponding with classmates, friends, parents; (5) arranging for traveling exhibits from the local museums; (6) assembly programs, holiday celebrations, parties and the like. Doctors report that children have happier and shorter convalescent periods when there is a 'school' within the hospital.

Continuity of care and education of the child after he leaves the hospital is essential. There should be no loss of time between the child's discharge from the hospital and the resumption of his schooling. Thought must be given to the type of instruction the child will need. Should it be home instruction, a special class or a regular school program? The child's best welfare is served when teacher, physician, social worker, and nurse confer about the matter. Much will depend upon the home situation and the availability of a school with facilities and services which will meet his needs. It is generally agreed that a short time in a special class serves to facilitate the child's adjustment to regular class placement. However, each case must be considered individually.

Teaching the Child in the Home

The educational objectives and principles are the same for a child learning at home as for other children in school. Attaining the objectives is more difficult. If the child has been ill for an extended period, he will lack the experience necessary for learning. He may become dependent upon his parents at the very age when a child's natural drive for independence, for a sense of autonomy, is strongest. He may have missed playmates of his own age.

The teacher will need to plan with others for socializing activities for the child. Carefully selected radio and television programs can bring the outside world to a child's bedside. The use of the two-way telephone between home and the classroom will probably be useful in giving the child a sense of participating with classmates. The visiting teacher can arrange with a neighboring school to have small groups of children visit the child at home.

Preparing the child for return to school should be kept constantly in mind. If the child is not confined to the house, he may visit the neighborhood school occasionally or the local community center where he can observe how girls and boys play together; he may even join them at times. Some schools sponsor projects in which students visit children in their homes, invite them to school parties, write to them, and exchange holiday greetings.

Consideration of the type of school to which the child may most profitably return is essential. Does the school understand the needs of a child who has not had the same experiences as others of his own age? Is the class small-enough for the individual attention and instruction this child may need? Is the program flexible enough to fit the child? Would a short time spent in a special class help the child to adapt to school? The teacher, the physician, the social worker, and an educational consultant who is familiar with the schools, their facilities, their administrative policies and their special services, will together, make the best decision possible for the child.

Guiding Girls and Boys to Achieve Vocational Maturity

The bulletin *Helping the Physically Limited Child* cites some guiding principles and practices that must be followed in relation to educational and vocational guidance of the physically limited child. Among these are:

1. The physically limited child is a 'normal' child with a physical limitation *which may or may not handicap him.*

2. Wherever possible, every effort should be made to enable these children to attend school and be members of a group.

3. Wherever instruction takes place, whether in school, home, or hospital, the child's environment must be adjusted and programs adapted so that he may have, as far as possible, the same experiences as other children.

4. Overprotection, or unnecessary restriction should be avoided.

5. The child should be helped to understand how the special agencies and services may assist him and should recognize his responsibility in cooperating with them.

6. Teamwork among all personnel is basic to a sound program of vocational guidance for the physically limited child.

7. Guidance of the physically limited boy or girl should continue until adjustment on the job has been assured.

Schools in which these principles and practices will flourish best are those in which:

1. Planning for children is based upon understanding of how children best grow and develop.

2. The special needs of a child with handicapping conditions are understood; opportunities to participate in the regular school program are provided; the environment is adjusted and procedures modified as the child's condition demands; all school personnel pool their efforts and resources to help the child.

3. It is recognized that many children whose cardiac limitation is not handicapping while they are of school age may become vocationally limited in later years, and therefore, are in need of special educational and vocational guidance.

4. Good working relationships are engendered and a concerted effort is made to interpret the special problems of the child to the school staff so that he is accepted and welcomed into the school by all personnel.

5. Special services are recognized as adjuncts to the learning process; supplementary services of official and voluntary agencies are sought when the need is indicated to help a particular child or group of children; the school provides leadership in the community in developing needed services and facilities.

Dr. Brownell[7] states "guidance and vocational counseling of a rheumatic child should begin at the time the diagnosis is first made. If this is done there should be no need for rehabilitation."

When guidance begins early, the student is prepared to take into consideration any limitations which his condition may impose upon vocational training and job placement. Through curriculum experiences, special measures and services, self reliance and independence can be fostered, good work habits and positive attitudes toward limitations and strengths inculcated. Teachers can often be influential in steering children's interests towards the vocations that are not especially strenuous. Girls and boys with heart disease should be encouraged to continue high school and obtain the most education of which they are capable.

Decisions concerning vocational guidance and placement should be based upon medical information and consultation with specialized vocational guidance counselors.

Conferences between the guidance counselor and the cardiologist are necessary. Research has shown that workers with cardiac conditions need not limit their work activities too strictly. The individual's capacity for work depends on the degree of impairment rather than on the type of heart disease.

The Bureau of Labor Statistics reports that in a controlled study of workers with cardiac disease and those with no impairment, absenteeism and work injury rates were only slightly higher in the first group than in the second. The work output was 2 per cent higher in the group with cardiac conditions. If they are properly placed, cardiacs are not handicapped workers. However, there are those for whom full activity is medically contraindicated. When medically indicated and recommended, those with severe cardiac conditions may find satisfying work in a sheltered workshop.

WORKING WITH THE COMMUNITY

Schools can do most for children with heart disease when they work with other voluntary and official community agencies. The New York City Board of Education reports a project for exchange of information between the classroom teacher and hospital personnel. The teacher attends hospital staff conferences with the physician, nurse and social worker. Together they plan for the pupil. Careful records are kept by both agencies. It is planned that this exchange of information will be continued throughout the child's school career and until his vocational problems are solved.

SUMMARY

Heart diseases most common in childhood are rheumatic heart disease resulting from rheumatic fever and congenital heart defects. The school health service has increasing responsibility, along with other community agencies, for referral and follow up of children suspected of having rheumatic fever, rheumatic heart disease, or a congenital heart defect.

Now that rheumatic fever can be prevented through prompt treatment of or prevention of certain kinds of streptococcal infections, the teacher must be alert to indications of possible strep infection (especially strep sore throat), as well as to signs that a child is generally under par physically.

One of the serious problems in relation to the school child and heart disease is 'over diagnosis' of rheumatic fever that results in falsely labeling a normal child a cardiac child. Another problem is the tendency of teachers to overprotect the child who has some slight heart damage. The doctor's recommendation regarding activity for the child should be sought and followed and checked at regular intervals. As the child's condition changes, he will be allowed more or less activity.

The importance of continuing the child's education is stressed. The visiting teacher may conduct activities in the hospital and at home during the child's convalescence.

Whether the child, upon his return to school, should enter a special class or the regular classroom depends upon a number of considerations. Sometimes the special class serves as a transition between home and regular classroom work.

The needs of the child with heart disease are essentially the same as those of all children. Certain adjustments may be required because of his specific health problem.

Vocational guidance is particularly important for the child with heart disease or for the child who has had rheumatic fever. These children should be steered into vocations that will not be too demanding physically in later years, when their hearts may show the effects of childhood rheumatic fever. They should be encouraged to attain the maximum education of which they are capable.

FOOTNOTES

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EMOTIONAL IMPLICATIONS OF RHEUMATIC HEART DISEASE IN CHILDREN*

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Rheumatic fever presents certain clinical aspects and problems that make it rather unique in the medical field. Many of these characteristics require a type of medical attention that has considerable bearing upon the feeling of security in regard to the future experienced both by the child who has had the disease, and also by the parents whose child has been ill with it. The acute phase of the illness may have an insidious onset, with the child showing evidence of general malaise and accompanying irritability or lethargy for several days or weeks before the actual definite symptoms develop. Or the symptoms may develop suddenly following or during an upper respiratory infection. During the acute phase the child is obviously ill, and often experiences considerable pain in the swollen joints. Not only because the child is ill and therefore requires care, but more significant, because the disease may at any time affect the heart, the nursing care must be carried through extremely meticulously. As a result of this need for nursing care and close medical supervision, a large percentage of the cases are hospitalized. This hospitalization is typically of fairly long duration, extending from a few weeks to as much as several months. Bed rest is required beyond the period when the child feels ill. This fact alone is often extremely hard for the child to comprehend unless he is repeatedly warned of the danger to which he is exposed if activity is resumed too quickly.

After the bed rest is discontinued, however, the child cannot resume a normal life. His activity must, at first, be sharply limited particularly if the heart has become involved. During the period of gradual resumption of activity, there is no way at the present time to determine what the ultimate potentialities of the heart may be for tolerating the level of activity associated with the pre-illness period. A doctor cannot say to the child, "If you let me govern the rapidity with which you return to active games and work,

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you will finally be able to play football." He can only say that, by carefully graded steps, the child will finally reach a barrier which may permanently limit his participation in functions having physical strain upon his heart.

This barrier is not static as a boundary of permanent limitations, within which the child will always be secure. One attack of rheumatic fever appears to make another more likely. One of the causes of recurrence involves the common cold. The cold may develop into rheumatic fever with further damage to the heart. Thus the child must be protected against the few causes of colds with which we are familiar, and must be put to bed again and protectively nursed whenever a cold occurs. It has been found wise to follow the period of acute illness with a period of supervised convalescence. This supervision is often impracticable in the home. The child needs close observation to determine the extent of the heart damage and its potentialities for partial recovery. Frequently when he leaves the hospital, he does not return home but goes to a convalescent home. Again this is for an indefinite period, varying from three months to several years. The management of the children during this period varies according to the institution. In the one with which I am most familiar, the child is closely observed, and in that protected environment allowed to return to relatively normal activities quite rapidly. Even with the program, however, it is a matter of three or four months at a minimum, and in some cases a year before the child is ready to return home. Thus, the child is deprived for a relatively long period of time of one of the basic needs of childhood, a home and family interrelationships. Even at the termination of the convalescent period, in many cases, his program does not include freedom of activity characteristic of the healthy child's daily existence. The child is permanently handicapped and must look forward to a life in which much of his gratification will come from relatively sedentary activities.

Other aspects of the illness have direct bearing on the child's adjustment. Many of the children after the convalescent period is over are unable to stand the physical strain of play, the intensity of the program and the stair-climbing that is a part of regular public school attendance. Therefore, in many of our large cities excellent special schools have been developed to which the child is brought in a bus. There his activity is controlled, and rest periods and opportunities to individualize his school work provided. While from a physical and educational standpoint this is all to the good, it again sets the child apart and deprives him of the normal social program of his age group.

Furthermore, more frequently than is common under ordinary circumstances, he is exposed to the death of a friend from an illness from which he also suffers. Many of these children have had the experience of learning that a child apparently less handicapped than themselves had a recurrence of the disease and died as a result of this recurrence. The child then has a graphic demonstration of how thin is the ice upon which he stands! This latter aspect was dramatically illustrated by Johnny R. who actually had minimal heart damage but because of the complication of chorea and a neurotic mother, was being supervised very carefully. The child manifested no overt anxiety in regard to his condition, but rather expressed irritation at his mother's supervision and evaded it at every opportunity. Six months after Johnny had returned to his home, a friend of his died. In this case, the child did not die from rheumatic fever but from a chronic kidney condition. Johnny was vague concerning the nature of the boy's illness. All he was aware of was that the boy had been sick for awhile, then was able to resume activity to about the extent that Johnny had, then he became ill again, and died. Johnny developed severe, recurrent night terrors. The dream was always the same. He saw the boy coming toward him. In the dream the boy seemed friendly, wished to play checkers with him, and in no way threatened him. In spite of this friendly return of the boy in the dream, the child was terrified. This terror persisted during the day. He was afraid to be alone. He wished the radio cabinet removed from the living room because it aroused severe panic in him. It looked like a coffin and he could see his friend, or someone, lying in it. His movements became tense and jerky, so that for a time it seemed the return of chorea. He was even less cooperative in limiting his activity. He rode his bicycle at an exhausting speed and for long hours. Interviews with this child brought out that he basically was terrified concerning his heart condition. Even before the death of his friend he was always afraid that death was just around the corner. This anxiety he had to deny, however. His activity, not resulting in death, was indulged in as a way to reassure himself that actually he was not about to die. It indicated to him that he was like any other boy, and the doctor and his mother were wrong. Then his friend died. His friend had denied the existence of danger by the same technique that he had used. Thus the appearance of his friend was a warning that they would soon meet after death to return to their old companionship. It was the child's unconscious warning to himself that he too would die in spite of his denial of his illness. Many of the convalescent cases of rheumatic fever present the problem of refusal to obey the restrictions placed upon them. In some, it is probably an unconscious suicidal impulse, particularly when it is accompanied with depression. Many cases, however, are probably similar to the one cited above. The child denies the danger he feels. He whistles as he walks through the cemetery.

As one observes the behavior of the rheumatic fever child at a convalescent home, one is impressed by three observations. In a group of children recovering from rheumatic fever, a fairly large percentage of the children react to the regime and the dangers in which they live with a surprising capacity for adjustment. However, there is no question but that there is a higher frequency of manifestations of emotional disturbance than is found in a group of physically well, unselected children. In cases evidencing disturbance there is no characteristic pattern by which maladjustment is expressed.

I cannot offer any very satisfactory hypothesis as to why the children who adjust healthily to their illness do so. Normality in psychiatry is always harder to study than pathology. One can postulate an hypothesis, however, and hope later as material accumulates to either disprove or verify it. Illness is frightening to any child. It is a common observation that the ill child tends to revert to a more infantile, dependent type of relationship with those caring for him. The child whose background has been conducive to mental health finds adequate reassurance in the period of nursing care and imposed dependency. This overcomes the anxiety and the child is able to face his reality. Furthermore, if the child has a capacity to relate to others, the effect of a prolonged period away from his parents is partially alleviated by the child's capacity to accept as parent surrogates the nurses and doctors who give him considerable attention because of the demands of his illness. In the convalescent home the house parents, the teachers, the doctor, and the supervisors of his program show sufficient interest in him to make it possible for him to shift his dependency to those individuals. As he discovers recreational and occupational outlets that are compatible with his physical condition and intriguing to his interests, he finds a new mode of living which is an adequate substitute for the pleasures he has to renounce. Thus he makes an adjustment to a reality situation. That this hypothesis has some validity is suggested by the observation that even in those cases where the general picture is one of wholesome emotional adjustment, there is observed, particularly during the early part of convalescence, a tendency for the child to appear more immature and more dependent upon adult relationships than would be expected for a child of the given chronological age.

In those cases where evidence of maladjustment becomes apparent, the picture presented seems to relate to the problems of the child prior to his illness. In all cases of maladjustment which we have studied at Herrick House, there is ample material in the past history of the child to explain the etiology of the presenting problem. In certain cases the history also indicates that the child showed evidence of poor adjustment prior to his illness. The cases we have studied most intensively, however, give a somewhat different history. In spite of the potentially damaging experience to which the child has been exposed, his adjustment had been relatively adequate up to the time of his illness. With the onset of the illness, or during the convalescent period, this adjustment breaks down. The dynamics behind this maladjustment vary according to the case. They relate to the emotional problem the child has had the greatest difficulty in handling in the past and where the solution to the underlying conflict is most precariously balanced. Thus the study of this group of children brings out material that covers the whole gamut of child psychiatry.

In view of the protean nature of the emotional disturbance observed in the child recovering from rheumatic fever, it is impossible to present a "typical" case. The following two cases give some indication, however, of the meaning the illness has had to the individual child, and the part it played in the final dissolution of the child's adjustment to earlier emotional conflicts.

M. B., age 14, was referred to Herrick House for convalescent care following a series of attacks of rheumatic fever. He had been either hospitalized or in a convalescent home for about two years. M's condition upon his entrance to Herrick House indicated a guarded prognosis for him both physically and psychologically. Physical examination revealed a loud, blowing systolic and diastolic murmur at the apex and a diastolic murmur at the aortic area. The heart was considerably enlarged. In addition to the cardiac findings he had an undescended testicle. The clinical picture seemed to verify the seriousness of the heart damage. M was pale and slender. Slight physical exertion brought on marked fatigue and respiratory embarrassment. Two weeks after his admission he had a mild recurrence of the infection which subsided in a few days. After that brief period his general condition improved steadily except for one day of elevated temperature following a nightmare, a situation which will be discussed in the psychological material.

Equally as alarming as the physical picture was the psychological picture the boy presented. He was extremely anxious about his condition, asked for constant reassurance whenever participating in the mildest form of activity, and expressed complete discouragement in regard to the future outlook for himself both physically and vocationally. He talked in a raucous, high-pitched, monotonous tone. When upset he talked at random, with no apparent continuity to his association, often forgetting what he was saying and compulsively repeating himself. At times he manifested either considerable anxiety, or his expression was masklike and he spoke without affect. Observing him at these times raised the question of a possible early schizophrenia.

M verbalized many anxieties. He was concerned about his physical condition and felt he would never be able to lead a normal life. He was concerned about his undescended testicle, partly because he had pain in it upon exertion and partly because he felt it made him different from other boys. He was also disturbed about nocturnal emissions which had never been explained to him. He expressed resentment over his father's restrictions on his activity and at the same time feared to hurt his father or to worry him by disobedience. Lastly, he felt he was different from other boys, that there was something "queer" about him. This last concern was particularly accentuated at Herrick House since actually M was more mature than the boys he was with, both physically and psychologically. His interests were "intellectual." He was obviously trying to compensate for his other limitations by driving himself into intellectual fields. He discussed his knowledge in a pedantic manner. The only other boy who approached him in maturity was physically stronger and more aggressive.

According to M until the initial attack of rheumatic fever, which he dated as occurring on his eleventh birthday, he had had normal boyish interests, taking part in competitive games with the other boys in the neighborhood and feeling quite adequate to them. After his initial illness his father had become extremely restrictive, manifesting a great deal of anxiety concerning the effect of any activity. During this first period, however, the situation was not too difficult because his mother was more lenient and allowed him more freedom when the father was not observing. During the time of his second period in a convalescent home, his mother died as the result of a cardiac condition. The father was unable to tell the boy of his mother's death, and it was several weeks before M was informed of it. When he returned from the convalescent home, his father was even more restrictive. allowing him practically no physical activity. It was after this period of enforced invalidism that he came to Herrick House.

Early in his stay at Herrick House he discussed his confusion in regard to the physiological aspects of sex with the physician and some of the counsellors. The clarification of his ideas and the reassurance he received seemed to relieve this particular phase of his anxiety. However, as this anxiety subsided his confusion in regard to his relationship with his father became clearer.

In the first psychiatric interview two phases of his anxiety became clear. On one hand he wished to be masculine, masculinity representing to him a physical capacity to deal aggressively with other boys. His intellectual superiority to the other boys did not satisfy him, making him feel queer. He was fearful of physical attack from other boys and felt inadequate to defend himself, as a masculine person should be able to do. This conflict brought him face to face with his relationship with his father. He felt his father was crushed by his mother's death and that since his older sisters were less understanding, he should in part fill his mother's place with the father. This identification with his mother led, however, to his equal identification with her heart condition, thus ultimately to a cardiac death. Furthermore he did not wish to be a woman; he wished to achieve as a man. This his father would not permit him to do. While rationally he saw his father's restrictions as based upon the father's anxiety concerning his heart, this explanation did not completely satisfy him. He felt also that his father did not really care for him except as an invalid. His father did not want him to grow into a man. He could hold his father's love only if he were a woman or an invalided child. He must relinquish the love if he became a man. Even though the doctors would permit him more activity than the father would, he could not violate the father's demands because his worry spoiled any fun M might have had. It made him feel too guilty.

At the end of one of the interviews there was some attempt on the therapist's part to mobilize the hostility that was diguised in M's guilt. Following that interview, the father visited the institution, expressing a great deal of concern about M's activity. M was very anxious to hide from the father how much he was actually doing. Following this visit, M had a nightmare from which he awoke in panic. In the dream he was carrying very heavy logs in a dense woods, a setting similar to that of Herrick House. As he walked further and further, he felt he could no longer carry the load, but if he dropped it he would die. He struggled, carrying it as long as he could, but finally dropped it. He awoke and felt frightened, faint, and nauseated. The following morning he did not feel well, and by afternoon his temperature was 101.2. He was kept in bed for a day and no further symptoms developed.

In the next interview with the psychiatrist, it became clear that the logs in the dream represented his anger. To carry anger, repressed, was exhausting, but to let it go would mean death. His reaction to this interpretation of the dream was as if he had experienced a revelation, and he was able to discuss more freely, with less apparent guilt, his feeling that his father was keeping him an invalid for his own purposes. He discussed his father's attitude as indication of his unwillingness to accept the patient of he became a man.

At the end of four months at Herrick House M was participating in the full activity of the group. His social adjustment was markedly improved both in his relationship with the boys and also with the girls. He was able to participate with apparent enjoyment in the group activities, and at times manifested real leadership ability. The summer following his convalescent period at Herrick House he returned for a vacation camp period. Observations at that time verified the impression of striking improvement in the boy's total adjustment. He participated freely and naturally with the other children in the camp activities, and assumed a position of leadership in the older boys' group. In spite of obvious cardiac damage, his general physical tolerance for activity was excellent. He presented a picture of a vivacious, enthusiastic adolescent. He indicated a continued concern over his father's restrictions, but told of a growing tendency to follow the advice of his physician and hide the actual extent of his activities from his father. This fall he is considering various plans for leaving home, in order to free himself of his father's pressure.

This case offers several points of discussion which can only be touched upon in this paper. One aspect of note is the fact that while M's father was a difficult person prior to M's illness, M had apparently handled the situation adequately enough to be able to seek normal masculine patterns of activity. His illness deprived him of his physical outlet, justified the father's anxiety, and confronted the boy with additional evidence of his father's inability to accept a son as a competitive male. The death of the mother increased the problem, both because her protection was removed and because the father's inadequacy in dealing with life without the mother aroused the boy's sympathy and his guilt. As possible solution was to identify with the mother, finding relief in a feminine identification. This, however, actually meant death of his masculinity, a narcissistic blow he was unwilling to accept. Not accepting this solution, however, brought him face to face with his hostility toward the castrative attitude of the father. M felt physically incapable of defending himself against the retaliation his anger would bring. In addition, he could not face the world without the support and protection of his father. Thus a more aggressive reaction to his situation was doomed to failure and he faced another narcissistic threat. The gift to his father of, and a sublimated aggressive outlet through, intellectual pursuits resulted in his being rejected by his peers. Furthermore his actual mental endowment, while adequate, was not great enough to give him a feeling of real achievement in this area, at least not a level at which his father would have been satisfied. Thus the rheumatic fever was the last link in a chain that proved to be a neurotic trap from which he could not free himself.

Another significant aspect of the case is the question as to why such a seriously disturbed child showed such rapid improvement. A partial explanation rests probably in the fact that his emotional illness could be considered an acute neurotic breakdown. Actually the last link in the chain was probably his mother's death. Prior to that time, during his previous convalescent home experience, he had verbalized primarily rebellion against his father's control. An equally significant factor was undoubtedly the environment Herrick House offered him. Aside from the little insight the boy had gained from his few interviews with the psychiatrist, the material was used chiefly to determine the method of manipulating the environment in which he was. He was told frankly what his heart condition was, but was encouraged to try out his physical tolerance under the careful but nonanxious supervision of a doctor and staff oriented to his physical handicap. He thus found a group of careful, interested, but nonanxious father figures upon whom to depend. He also formed a relationship with a male counsellor, who was mildly physically handicapped. This man offered an ideal to him; a man who in spite of certain physical limitations had not had to either relinquish or exaggerate his masculinity. Thus he found an ego ideal whom it was safe to emulate. Through carefully manipulated group situations he was given subtle assistance in finding a means of gaining a gratifying rapport with other boys of his age. Above all, he was in an environment which not only took his masculinity for granted, but which valued him for it. His heart condition thus became not a threat to his masculinity, but something to be dealt with as a realistic limitation freer than before of neurotic implications. He was offered a life situation which assured him constructive, safe ways of expressing normal aggression, methods which did not jeopardize either his life, his emotional security, or his self-respect.

Mary L., 9 years old, was referred to Herrick House because while her attack of rheumatic fever was not recent, the doctor feared a recurrence unless her general condition improved. Mary was extremely hostile toward all adults. Any minor frustration resulted in a severe temper outbreak. She expressed a great deal of hostility toward her mother because of the mother's neglect of her. Much of the time she gave the impression of being deeply depressed, particularly following an outbreak against her mother or a staff member. She insisted upon wearing blue jeans upon all occasions because she did not like girl's clothes. She had many physical complaints, one of the most striking being periodic difficulty in breathing. The breathing difficulty was described by the staff as asthmatic in character, but no physical findings of asthma were ever present. In addition to her physical complaints and her poor general adjustment, she had severe nightmares nightly from which she awoke in a state of panic. She fought sleep at night because of her dread of the dream she would have.

Mary came from a poor home situation. She was the middle child. The other two children were boys. Both her father and mother were alcoholic. At the time of her readmission to Herrick House the parents were obtaining a divorce. The proceedings brought out the fact that the parents were physically abusive to each other and neglected the children. The mother was promiscuous, exposing the children to her sexual irregularities. Mary, in particular, was used as a tool by each parent to attack the other. Both parents wished to have custody of her. They, and their relatives attempted to influence Mary against one or the other parent.

The parents claimed Mary's adjustment was excellent prior to her illness. They stated she had become irritable and prone to temper outbreaks after she became ill. Mary stated that prior to her illness she had always been happy except when she remembered that she was a girl. She had always wanted to be a boy. Her brother was born when she was 6 years old. She noticed, as her mother was dressing him one day, that he had a penis. She recalled the feeling of surprise and disappoinmtent that she didn't have one, too. Her mother told her that that was why she was a girl and her brother was a boy. However, she felt almost as strong as her older brother, and she played with boys most of the time. At the same time she liked to play with dolls. This doll play was apparently characterized by a gentle, maternal interest in her dolls. She recalled many pleasant dreams during the pre-illness period. They were of being superman or a cowboy. She had hoped when she grew up she could be a cowboy even if she were a girl.

Mary recalled vividly the occasion of her first nightmare. It occurred the first night she was in the hospital. She had been ill at home for a few weeks previously, and had been taken to the hospital because the doctor felt she was too sick to remain at home. She knew something had happened to her heart. In the dream someone, she didn't know whether it was a man or a woman, was going to cut something off, either her arm or her leg, she thought. She was terrified in the dream and woke screaming. Many of her nightmares since that time were a recurrence of this dream. She also frequently dreamed of being pursued by hornets or bees which would sting her and either bite something off or kill her. Her immediate association to hornets and bees was that they were bugs. Before she was ill, she used to like to pick things up in the alley. Her father used to tell her they were dirty, had bugs on them, and bugs would make her sick. She thought that the bugs had caused her rheumatic fever.

Mary was very definite as to why she wished to be a boy. Men were dangerous to women. They beat women up. She knew, because her father did it to her mother and her brother tried to do it to her. Her father threw her mother downstairs and almost broke her arm. Men were strong, and you had to be like a man in order to protect yourself against them. She would do everything to make herself strong. She would not wear girl's clothes because they were silly and showed you were a girl. She wanted to be as much like a boy as possible, because then she would be strong. It was pointed out to her early in treatment that perhaps she had judged all men by the way her father and brother acted, to which she added that most men she knew were like them. A possible exception was the husband of a cousin of hers. Following this comment, Mary had a dream in which her friend, Marigold, was in jail and in bed with a bad man. Marigold called Mary, saying that Mary could save her by digging for a golden needle which would give Marigold three wishes. Mary found the needle, and Marigold wished first to get well, to get out of jail and away from the bad man; secondly, that she could live with her mother forever. Mary awakened at this point and was upset that she would never know the third wish.

Obviously there were many angles of significance of this dream. It was interpreted to her, however, as indicative of a feeling of being trapped with a man who was cruel like her father. It was pointed out that the dream indicated that she really wished to escape from him and to be loved by a mother who would always protect her. It was suggested, following certain comments on her part, that perhaps the third wish was related to her fear of being a woman. Perhaps she wished to find it was safe to be one. This interpretation led to questions on her part in regard to the therapist's own life; was she married, did she have children, and was her husband nice to her? Mary also made some comments concerning married people at the institution who were nice to each other. Toward the end of the interview she climbed on the therapist's lap, snuggled much as a small child would, and discussed her wish to have things given to her by her mother, not by other people. She wished to be loved by her mother, not just by other people. She expressed her doubt as to whether her mother really loved her and her feeling of anxiety at that possibility.

Characteristic of this dramatically expressive child, this interview was followed by a marked change in her behavior during the next week. She rejected her boyish clothes and insisted upon wearing dresses. She continued to become angry if frustrated but instead of withdrawing from all adults, she sought out sympathetic maternal people to whom to cling and to complain of her deprivation. Her adjustment to other children improved. About that time plans were being made for Christmas. She requested a doll, doll dishes, and lipstick as Christmas presents. Whereas before she had refused to let anyone fix her hair, she now wished it curled and properly combed. Anticipation of a visit from either parent, however, always resulted in her returning to her sloppy, boyish dress.

The last contact the therapist had with her was unplanned. Mary wanted to buy something at the store and discovered that she did not have sufficient money. Attempts to supplement her account by a gift from the counsellor resulted in a violent rage which culminated in Mary's coming to the therapist. She clung to the therapist sobbing, "Can't anyone understand? I don't wants things from other people. I want a mother who will love me and give things to me. I want a mother who loves me."

In this case, even more than in that of M, it is apparent that only prolonged study would make a complete reconstruction of the dynamics of the personality disturbance possible. It would seem justified, however, to assume that this insecure child, frightened by the brutality to which she was exposed, had avoided a complete panic prior to her illness by an attempted masculine identification. Her aggressive strength gave her a sense of capacity for self-protection. In her dramatization of herself she was a boy. Because of the physical limitations placed upon her, the rheumatic fever actually symbolically castrated her. She was no longer able to handle her anxiety by an aggressive attack against danger. Furthermore, she was basically drawn toward a feminine orientation to life, as indicated even before her illness by her interest in doll play. This was dangerous in itself, however, especially after her illness, since with her incapacity to protect herself it tempted her to assume a role that reality experience had shown would expose her to real brutality. A possible answer to this anxiety-fraught conflict was to regress to an infantile dependency level. She wished to turn to a loving mother. She did not have a mother to turn to, however. Thus she could find no relief from her tension.

Certain observations made during our eight-year study of this group of children seem to warrant certain tentative conclusions in regard to the role the illness plays. As has been stated earlier, there is a tendency for a sick child to regress to a dependency level in his emotional demands upon adults. The acute illness offers a gratifying experience because of the care provided. This is a tempting situation to a disturbed child. If a child, because of the conflicts and resultant anxieties with which he has been struggling prior to his illness, has found growing away from a dependency level of emotional stature difficult, the rheumatic fever places greater strain upon this growth process and invites continued regression. If the child's infancy was satisfactory, but his later stages of growth less so, illness offers an opportunity to return to the earlier happy relationship. If the infancy period was not completely gratifying, then the illness presents another opportunity to fill the gaps left in the first dependency period. Another aspect of the illness also tends to increase the child's dependency needs. The illness and the necessary precautions taken create additional anxiety for the child. Whereas before, the child's conflicts may have resulted in a neurotic type of anxiety, there is now superimposed a real anxiety. To offer a hypothetical example of this, assume a boy has had difficulty in overcoming his fear of his father during the oedipal period. He is anxious, but reality offers him some reassurance, so he struggles against a tendency to seek the protection of his mother on an infantile, helpless level. Superimposed upon this anxiety which is inherent in the process of his psychosexual development, a new threat arises with his illness. Now the doctor and his parents are aware of a danger that previously remained his secret, a secret that may have been hidden even from him by the repression that had occurred in regard to the real problem with which he struggled. He may now be overcome by impinging dangers, one of which is a factual one that no reality can deny. The child seeks relief from this overpowering anxiety by regressing to a safer level of development. He reverts to a helpless dependent state, in which not he himself, but his parents protect him. The anxiety having become unbearable, instead of dealing only with the reality danger, he runs away from the summation of dangers, and relinquishes his tentative solution to the oedipal problem as well as seeking protection because of physical needs.

Another blow to the child's psychic stability is the effect of the illness on his capacity to deal with his problems aggressively. The struggle the normal child has with his own aggressive impulses is a familiar story to all of us. The child rests part of his confidence in dealing with his underlying anxieties upon his capacity to deal aggressively with them, and thus to protect himself. He fears his aggressive impulses, on the other hand, because of the danger of punishment resulting from any aggressive attack upon the situations he dislikes. This punishment may be the loss of the parent's love, an untenable situation for the small child. His capacity for aggressiveness is therefore not only reassuring, it is also fraught with danger. The child solves this dilemma in part by expressing his aggressions in physical activity, at the same time as he dilutes some of the intensity of his emotional attachment and need for his parents by diverting it to a relationship with his peers. The highest frequency of initial onset of rheumatic fever is coincident with the age at which the child is either seeking or has successfully made this pragmatic transfer of his conflicting impulses. Rheumatic fever in general affects groups who are in the so-called latency period of emotional maturation. Rheumatic fever and its complications make this above solution relatively impossible. The long period of isolation from a social group and normal social activities lessens the opportunity for friendships to partially replace the parents. Furthermore, and more significant, aggressive behavior, expressed in the healthy pattern of the normal child through aggressive, active games, is again dangerous. Such expression of aggression carries with it the possible punishment of death! The danger in aggressive behavior thus becomes a real one, and the sublimation usually found by children is forbidden.

This need to hold in check their aggressions has another implication. It is a narcissistic threat, a real blow to the child's self-esteem. Since success in active games is to the small boy synonymous with being masculine, the illness deprives him of his masculinity. This was dramatically illustrated by a reaction of A. C., a case reported in full elsewhere. A. C. became enuretic following his first attack of rheumatic fever. During his stay at the convalescent home, he wet the bed three times. Each time followed an examination by a woman physician and a resultant further restriction upon his activity since his heart was not tolerating the strain placed upon it. He connected his examination by the doctor with his enuresis, stating "She took something from me." Those who are familiar with Margaret Gerard's work on enuresis in boys will recognize here a verbalization of a common finding in that condition—the fear of castration by the mother unless the child remains helpless.

The danger of aggressive expression on the part of the child creates further anxiety for him. He feels helpless in defending himself against the aggression of others. Exposed to the danger of attack, he has no protective defense. The enuretic boy cited above, attempted to handle the problem by an identification with his sister. She was pregnant. He had a dream in which he was being attacked by a boy, and he attempted to escape by placing a pillow over his abdomen and under his clothes. He recognized this as an attempt to appear pregnant. Another boy, who had a severe congenital heart condition, expressed a wish to grow up. When questioned in regard to this, he stated that he wanted to be grown so he would die sooner. Since he had been a good boy, he was confident that he would go to heaven. He wanted to go to heaven because in heaven there were no bad people. People who fought on this earth did not go to heaven, therefore no one would attack him in heaven. Heaven represented to him the only place where he would be free from the aggressions of others. This was important to him since he could not, because of his general physical weakness and because of the danger lying in strenuous activity, defend himself.

Direct psychiatric treatment of disturbed cardiacs has certain limitations not existent in the treatment of physically healthy children. It is impossible to have as the goal the resolving of the child's anxiety because to a certain extent the anxiety is real. The child is always in danger. The goal of treatment must therefore be the resolution of the neurotic anxiety, and help in accepting the physically necessary limitations imposed by the heart condition. Because of this latter aspect, environment manipulation is extremely important. The child needs to be stimulated to express his aggression, though physically safe outlets must be found in which this can be accomplished. He needs also a situation in which either the parents or parent surrogates can offer him the security of an emotional relationship at the level to which he has regressed. Further, he needs to be encouraged gradually to grow away from his dependency upon those parent figures, in order to find for the first time, or rediscover the fact that in spite of his heart condition, the world of reality is not as dangerous as it has seemed. Thus it is imperative that the convalescent period for the cardiac be geared not only to the physical needs of the child, but equally to the total child. Some of the disturbed cases need psychiatric treatment during this period. A fair percentage of these children, however, whose adjustment was relatively adequate up to the time of their illness, will regain their adequacy in dealing with their problems as a result of wisely controlled life experiences rather than through insight. However, this occurs only if the environment is geared to the therapeutic implications that become apparent from an understanding of the dynamics of the individual child's difficulty. The methods by which this is attempted at Herrick House are now in the process of being evaluated.

There are two major reasons for considering the emotional implications of rheumatic fever seriously. On one hand, it is difficult to function in the world at large with a physical handicap. It is equally difficult to do so with even a relatively benign emotional handicap. The two conditions existing in one person undoubtedly increase the difficulties geometrically, since each condition increases the problems presented by the other. A second consideration is the effect that anxiety has upon the heart directly. We know that the arteriosclerotic heart is damaged by the additional strain anxiety places on it. There is no reason to assume that this is not equally true with the rheumatic heart. Our study has not extended over a long enough period of time, and there are too many extraneous factors that contribute to increased damage to the rheumatic heart, for us to offer irrefutable evidence of the effect of anxiety. There have, however, been several cases in which the most obvious explanation for increased symptoms in the child seemed to be the anxious period the child was in. In addition, there have been several cases of surprisingly good recovery where the turning point seemed, as indicated in the case of M, to be related to the relief from the underlying emotional disturbance that the child experienced.

CARDIAC ADOLESCENTS*

MALCOLM D. McQUILLAN

How does a cardiac condition affect the life situation of an adolescent? Does a cardiac child differ from a normal adolescent in his or her life situation? Can cardiac adolescents live a happy, useful life or does the condition preclude them from participation in the ordinary stresses and strains of life?

Let us focus our attention on three representative cases. Two of them are that most common form of cardiac condition—rheumatic heart condition. A tachycardiac case is used to indicate the presence of this small but important miscellaneous category.

There are two types of cardiac adolescents: congenital and rheumatic. The congenital cardiac suffers the condition from birth. Rheumatic cardiacs acquire the condition; it affects both the heart and joints. Other heart cases, like tachycardia, are listed as miscellaneous.

Rheumatic fever usually strikes between the ages of from five to 15. Since 75 per cent of all heart disease develops in children under 10 years of age, examination of the hearts of school children is very important.

The first adolescent of the three representative cases studied was Dorothy, 13 years old. Dorothy is a rheumatic cardiac. She seems to be well nourished but is not well-developed physically. The girl is slim and moves in a lackadaisical fashion. Her teeth need attention.

Dorothy first suffered an onset of heart trouble at the age of 11. She was sent to a convalescent home for four months after which she was returned home but not restricted in activities.

The girl's mother works, so at the time she complained that she would not have the opportunity to stay home and take care of Dorothy. The combined salary of both parents is quite small.

After a short period at home Dorothy was again returned to the convalescent home. This time she remained six months. At the home her

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health improved to a normal or almost normal plateau of physiological health. Her erythrocyte sedimentation rate returned to normal and all pains and discomfort disappeared. Her activities are not restricted but she visits a hospital clinic once a month for a check-up.

She is attending a special class at school. The state in which she lives has a division for physically handicapped children which organizes special classes for children with physical defects or organic conditions.

Morris, the second observed case, is a potential cardiac. He is suffering from a paroxysmal tachycardia, an electrical condition which has spasmodic effects upon the heart. Potential cardiac refers to a possible chronic heart condition. These cases are regarded as being amenable to treatment.

The boy, who is 15 years old, is tall and well-proportioned. His teeth and general body condition are good and his appearance is wholesome. He likes to play baseball and basketball. He will be a junior in high school this fall.

He suffered his first attack about a year ago. His heart began to beat very fast. The attack, and indeed all subsequent attacks, lasted for about two hours. During the attack he turned very white and felt sick. His family said he looked "sick" during this and other witnessed attacks. The condition subsided spontaneously until the next onset. Morris cannot recall what he was doing at the time of the first attack.

This attack set the pattern for all subsequent attacks. The boy is ill about two hours; his heart beats very fast but regularly. A light-headed and dizzy feeling occurs and then there is a spontaneous abatement. The attack does not seem related to any activity. Morris has lost no time at school or summer work. His activities are not restricted.

Morris has been asked to note what activity he is engaging in when illness strikes. If the activity is tying a shoelace, or fixing a tie, this is to be marked. If the activity is dissimilar on each occasion, perhaps the same basic pattern (bending over, reaching over, stretching, etc.) will be observed in each activity.

While he was a student in the sixth grade Morris was constantly checked by a physician because of a heart murmur. He was told that he must stay out of sports. He has had measles, whooping cough, and scarlet fever. At the age of 13 he suffered a cerebral concussion when he was struck in back of the head while playing baseball. When he was brought home from the baseball field he was confused, disoriented, and "vomited several times." He thinks, but is not sure, that he was unconscious at the time.

Examination of the cerebral concussion at the hospital revealed a closed head injury with amnesia. At no time was there bleeding from the nose, ears, or mouth, no convulsions or localized weakness. He has had several frontal headaches since that time.

Morris says that he feels dizzy when he gets up in the morning. He also states that he feels tired all the time. He does not smoke. His mother, who was with Morris at the time of his last examination, states that he works hard around the house and at his summer job. She says ". . . he's a good boy . . . he's a good worker . . never gives me any trouble."

The third observed case was Rafael, a Puerto Rican boy of 13. Rafael has acute rheumatic fever. He is a potential cardiac. He is a slight but well-developed and well-nourished male of 97 pounds. His teeth are in good repair.

Rafael's first episode of rheumatic fever took place in Puerto Rico in 1947. It was marked by polyarthritis, fever, and malaise. Migratory joint pains were also present. His treatment consisted of one month of rest.

He had his second attack in 1948 and was hospitalized in the continental United States, where his family had since migrated. Examination disclosed that he had a heart murmur. After discharge he was placed on unrestricted activity.

He remained well until about two weeks prior to his second admission to the same hospital. At this time he developed a sore throat, showed malaise, and suffered a hot, red, tend left knee which was followed by a hot, red right ankle with fever. The knee was red, swollen, and quite sensitive. Physical examination showed that he had a soft apical heart murmur. On several occasions during the first 10 days of his hospital stay, a soft, mild diastolic murmur was audible when Rafael lay on his right side or after he had taken exercise.

Rafael was placed on salicylates and his symptoms subsided. He developed vomiting, however, and administration of sodium salicylate was discontinued and aspirin begun. The aspirin was discontinued after three weeks. At the end of this period his erythrocyte sedimentation rate was normal and only an apical, inconstant, soft systolic heart murmur was heard at the time.

In November, 1948, Rafael was sent to an institution, operated by the state for the care of children with heart disease. At the institution he was placed on the convalescent program in March, 1950.

The boy made a good adjustment and worked well in a group setting. Personnel there found him slow moving and slow in his responses but decided that this might be due to language difficulty (Rafael's family speaks Puerto Rican-Spanish at home).

Tests at the institution showed that Rafael had a low normal I.Q. He worked in the seventh grade which is below his proper grade level. The school, however, considered that he did quite well in view of his language handicap. He has since been discharged from the institution.

Rafael has been feeling very well since then and visits a cardiac clinic in a municipal hospital every week. He feels an occasional mild joint pain in the knee. Examination of both knees and ankle fail to demonstrate any bone or joint pathology. His heart and aorta are normal in size and configuration. There is a soft apical systolic heart murmur which increases in intensity on exercise.

He has not been restricted in activity since 1950, although he always walks upstairs; he says he gets tired if he runs up. Cardiac adolescents are encouraged to take part in noncompetitive sports. A child will stop roller skating or swimming but in a competitive sport like baseball or basketball will continue even if tired.

Rafael will not work this summer. This fall he will return to a special class at school.

These three selected cases were early adolescents. Two of them were rheumatic heart conditions. The duplication in this area was considered necessary as rheumatic cardiac condition strikes heaviest and hardest.

Of the three cases, one was a girl adolescent and the remaining two, boy adolescents. Restriction of activities in cardiac adolescent boys constitutes a greater hardship because of the virile connotation of sports and mechanics in our culture. Two were born in the eastern part of the United States and the other in Puerto Rico.

The onset of heart condition struck the two rheumatic cardiac cases at the age of nine and 11 respectively. The tachycardiac adolescent suffered his first trouble at the age of 14. Two of the cardiac cases were affected in adolescence, one in pre-adolescence.

Both of the rheumatic cardiacs experienced discomfort in their joints. All underwent retardation of vigor. Dorothy's lackadaisical manner was noticeable and Rafael was slow in his responses at the institution, although personnel ascribe it to a language difficulty. He complains that he gets tired when he runs upstairs. Morris also complains of being tired "all the time."

Dorothy's convalescent periods were six and four months respectively, a total of 10 months. She also spent about three months at home, which brings the total time of convalescence to 13 months. Rafael's convalescent period added up to 16 months. In comparing the two convalescent periods the severity of Rafael's illness must be considered.

Dorothy is attending a special class at school and Rafael will be in a special class this fall. None of the children is restricted in activity. Morris is not attending a special class. Both Dorothy and Rafael are advised to rest during the day but Morris is not.

Through the detailed observation and comparison of three individuals, it was possible to reach several tentative conclusions.

Fatigue seems to be a common factor in heart disease and convalescent rest is prescribed. Although rest was not specifically prescribed for Morris, it would seem feasible because of his complaint of fatigue. Rest is a large and important factor in the treatment of cardiac adolescents.

Dorothy still helps around the house. Both she and Rafael continue their schooling in a special class. Morris also goes on with his regular class work. All cardiac children are encouraged to take part in noncompetitive sports so that they can quit when tired. Restraint but not restriction of activities seems advisable for cardiac children.

Rheumatic cardiacs must undergo a long convalescence while recovering from their illness. This is a factor that would affect their life situation in loss of time from normal activities such as school and work.

All of the children are regarded as potential cardiacs. Their physiological state of health has returned to normal or almost normal in the rheumatic cardiac cases. Morris' condition is not considered chronic. If symptoms of cardiac condition are detected in pre-adolescence and adolescence there seems to be a chance of preventing permanent impairment.

Two of the children were first affected at the age of 11. One was a rheumatic cardiac and the other a tachycardiac. The other child was affected with a rheumatic condition at the age of nine. To conclude from the limited data that heart disease strikes in pre-adolescence or childhood would be false.

The tentative conclusion may be made that cardiac disease most often begins in youth. When it occurs in adults there is cause for suspecting that it may have started in childhood or youth but went undetected.

Morris sustained a cerebral concussion at the age of 13. Can we relate his present condition to this accident or does it date back to the heart murmur detected at the age of 11? Does his tachycardia have a physiological basis . . . or is is psychological?

Heart disease as a killer looms large in our death rate. If it is detected early in adolescence the individual may live a long and useful life.

To know the exterior signs of heart disease is the first step in preventing chronic illness. These signs are: continual fatigue and pains in the joints.

A recognition of these two signs is the basis of a referral to a physician. The fatigue signs may be caused by too little sleep and the pains in the joints may turn out to be growing pains but the adult who recognizes them and reports them is operating on the safe side.

A cardiac adolescent cannot always take a part in competitive sports. His interests should be guided to noncompetitive sports from which he can drop out when tired. He can be directed to clubs from which he can drop out when tired. He can be directed to organizations which do not require physical exertion; this will provide him with the group camaraderie that is so vital to adolescents.

Protection does not mean overprotection; the cardiac adolescent can be encouraged to lead a full life within the limits of his ability.

WHEN CHILDREN ARE CONVALESCING FROM RHEUMATIC FEVER*

JEANNE KININGHAM IGERSHEIMER, CHARLES H. CROTHERS, AND ROBERT B. KUGEL

At our pediatric cardiac clinic various staff members have for a long time recognized that the parents of children who are recovering from rheumatic fever have many problems. During the acute stage of the disease the parents' concern is centered on the treatment of the illness. But after that stage has passed, and also the stage when the child is resting in bed, the parents encounter increasing difficulties. For when the doctor says that the time has come when the child may—and should—become more active, the parents are likely to worry much more than they did earlier about what may happen to their child.

Our staff members have always instructed the various parents individually, giving them as much help as possible in their efforts to care for their sick child and restore him to health. But as we all know, people gain confidence through talking together about their common problems. Acting on this idea, the physician who directs the clinic, and the medical social worker assigned to it, introduced a plan for encouraging and helping the mothers by gathering some of them together at the clinic for discussion. (At that time we had not thought of including the fathers.) This was in November of 1951.

The entire staff of the clinic—five doctors, the nurse, and the medical social worker—became a committee to plan for the parents' meetings.

At our first meeting, our planning group defined its purpose. It was to help parents understand rheumatic fever so that they could do a better job for their convalescent children, and do it with less anxiety. We did not think of the meetings as group therapy, in the sense of uncovering and solving basic emotional problems; but we hoped that the group experience would help to reduce the parents' worries about the child's recovery.

Since our clinic was going to try the group approach as an experiment, we felt that we should limit our goals, and not let the meetings be looked upon

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as a cure-all for the parents' emotional problems. Nevertheless we felt that through free discussion the parents could help one another to face their common problems with less anxiety. We hoped also that we could help them with the problems by encouraging them to ask questions and by providing information.

Before the meetings could begin, which we hoped would be in 2 months, the staff had many points to settle: How many parents should be invited to join the group? How would they be selected? Who would interview them and explain the project? Who would lead the meetings? How could the discussions be recorded?

We tentatively selected the place for the parents' meetings, at the clinic, and scheduled our own planning sessions for November and December—weekly or biweekly.

Two sessions were devoted to studying criteria for selecting parents. We decided not to limit the group to mothers, for we felt that the children would benefit if the fathers participated also. This turned out to be the right decision, for we learned that although the fathers were inclined to think that caring for the sick child was the mothers' job, they at the same time resented being left out.

We decided that 8 to 10 parents would be a good number; a meeting of this size, we believed, would permit full discussion and free exchange of ideas.

WHEN DO THE PARENTS MOST NEED HELP?

At first we intended not to specify any one stage of rheumatic fever when deciding on the children whose parents were to be asked to participate. But as our discussion went on, we realized that the meetings would be most valuable to the parents of children who were at the stage when they were being restored to activity, partial or full. We felt that during the acute stage of the disease, when the child is very ill, and at the bed-rest stage, when he is quiet, the parents are more able to cope with their problems than when the child is permitted by the doctor to be up and about.

We tried to select parents who were fairly intelligent and thus able to contribute to discussions, and who were not too emotionally disturbed themselves. The doctors wondered whether there was any danger that the meetings might release deeper emotional reactions than could be handled comfortably in a group; this, they felt, might defeat our plans. We were pretty sure that this could not be entirely avoided, and so we decided that if it occurred we would offer to help the individual parents after the meeting was over.

The next step was taken by the doctors, each of whom took responsibility for considering his group of patients and selecting families that he thought would benefit from parent meetings. After deciding on a family, the doctor discussed its suitability either with the staff, at a regular preclinic conference, or individually with the medical social worker, who already knew many of the families. After a family was agreed upon as suitable, the doctor talked to the mother to find out whether she was interested in the project.

(Not all the families who were approached showed interest.) After a mother's interest was clear, the medical social worker arranged an interview, preferably with both parents, for final screening and for further explanation of the project.

During the medical social worker's interview with the parents, she studied them with regard to the selection factors we had agreed on, and she obtained an idea of some of their problems concerning their sick child. The worker explained the plans for the meetings and asked the parents what they hoped to gain from the experience. She told them that the first meeting would be devoted to their getting acquainted and deciding on specific points for discussion. The parents were also polled with regard to their preference concerning the times when the meetings would be held.

WE LOOK FOR COMMON PROBLEMS

The medical social worker shared what she had learned from the parents with the rest of our planning group, and we then sifted the information to discover common problems. The group learned that in a number of cases the parents somewhat distrusted the medical management; that they had difficulty in permitting their child to increase his activity, even though the doctor had ordered this; that they were uncertain and fearful as to their child's future health; and that they were worried lest the child would have problems in adjusting in school.

As a month passed and only a few parents had been decided on as group members, we began to realize that we had been too optimistic. December brought slackening of clinic attendance, as well as bad weather and staff absences, and we found it necessary to postpone starting the parents' meetings till March.

The question of leadership for the meetings was solved when the medical social worker, who had had previous experience in group work, was able to arrange to take special time from the social-service department for the project. She provided regular leadership, and two of the doctors took part in all but the first meeting.

The problem of recording the meetings was never satisfactorily solved. It was suggested that we use a tape recorder; also that the leader of the group or a parent might take notes. The latter idea was brought up at the first meeting, and one of the mothers volunteered to write minutes for the one session. After other meetings the leaders attempted to reconstruct the discussions, but were unable to do it except in a cursory way.

At last, one evening in March, at 8 o'clock, three fathers and five mothers gathered in the staff room near the clinic. They sat in comfortable chairs arranged in an informal circle. The parents already understood that at this meeting they would help to plan the agenda for future meetings and to make the arrangements.

No doctors were present at this first meeting; this had been agreed upon ahead of time. The medical social worker opened the meeting by suggesting that the parents introduce themselves. She then asked them to tell something about their child's experience with rheumatic fever. These statements brought up specific problems, which seemed to concern all the parents.

One typical question concerned penicillin. All the parents were interested in knowing more about this drug. They wondered why the body did not build up an immunity to it; they asked whether it affected children adversely, and if so, how. One mother said that her child had been given prophylactic doses of penicillin recently, and that she thought that this meant the child wasn't getting along as well as she had hoped, even though the doctor had told her this was not true. The other parents quickly reassured her, telling her that it was merely to prevent the child from getting more infection. The group finally decided that they would ask the doctors some of these questions at the next meeting.

The parents also mentioned problems of their children's school attendance and their behavior, and wondered if they couldn't bring these up at another meeting. Several parents said they didn't know how much excitement a child with rheumatic fever could stand, and they asked at what stage of the disease one should feel free to discipline him. They were also concerned about whether their child might be "spoiled" during the course of the illness. Opinions differed on "spoiling"; some parents felt that it was impossible not to focus special attention on the child at some time during his illness.

When the leader explained that the group would decide how frequently they would want to meet, and as to the time of day, the parents unanimously agreed on one-hour evening meetings. Tentatively they decided on a total of four weekly meetings, deferring decision on whether to continue beyond that. On this basis, future discussion was outlined as follows: Second meeting, specific questions for the doctors in relation to medical information; third meeting, problems of management of the child's behavior; fourth meeting, summary questions.

QUESTIONS FOR THE DOCTORS

The plan to have the medical social worker find out the concerns of the individual parents ahead of time, and then to let the parents discover at the first meeting that their problems were common ones, turned out to be sound. At this meeting the absence of the doctors permitted the parents to bring out their questions about medical management without fear of jeopardizing their relationship with the clinic's medical personnel. As the staff had planned, the leader succeeded during the first meeting in directing the discussion in such a way that the possibility of having the doctors come to the next meeting was brought up by several parents.

The parents were particularly disturbed because they thought they had been told different things by different doctors. They had expressed this feeling first individually to the medical social worker in the early interviews, and later they discussed it in the meetings. At the last meeting of the series they felt secure enough to express their resentment directly to the doctors. The doctors encouraged them to bring out into the open their feelings of bewilderment and confusion, and answered many questions. This helped the parents discover that doctors had logical reasons for handling situations differently.

Penicillin continued to be a central theme throughout all the meetings. At first the leaders were concerned about why the parents had not asked about this earlier. Why did they need assurance now? It appeared that penicillin was symbolic of their hope for the child's recovery and future health. It would "solve everything"—it was a cure-all—there would be no more colds and therefore no recurrences of rheumatic fever!

The parents finally were able to ask the stark question: "Do you mean there is nothing I can do that I am not doing now to prevent another attack of rheumatic fever?"

This in turn led the leaders to wonder what was the effect of telling the parents that penicillin would not cure, nor prevent, rheumatic fever. Were their defenses being broken down without anything else being offered them? Did they need something tangible to do, like giving a pill? These were questions which the staff could not answer, but which certainly should be recognized in planning such group discussions.

At the last meeting, there still seemed to be some confusion in the parents' minds, but later contacts with the staff indicated that the group members had become more able to accept the limitations of treatment.

Many of the specific questions raised by the group related to the future:

One mother asked whether her little girl could have a child after she grew up, despite the fact that she had had rheumatic fever.

The entire group was concerned about whether physical exercise could cause a recurrence of rheumatic-fever attacks. Even at the last meeting it was clear that obeying the doctor's directions for increased activity by the child was a major problem to the parents. One mother admitted that every time the doctor permitted her child more activity she would reduce it by 50 percent.

Parents Blame Themselves

The parents asked how they could explain rheumatic fever to other people. This question seemed related to their own thinking that perhaps their child was "not so good." Also, did people think they were not giving good care to their child? One mother indicated that she was going to do so well in caring for her child that she would never be at fault again. It was difficult for the staff to convince the parents that they might not have been at fault the first time.

It seemed to the leaders that the parents were better able to accept the limitations of medical treatment when they realized that the fear of another attack was shared by all and that no parent would be to blame should another attack occur. Also, painful information seemed more bearable when diluted by the group discussion.

The leaders recognized that they could not remove all the parents' fears. The real situation was basically unchanged; their children continued to return to the clinic and continued to take penicillin. While this was happening the parents could not entirely accept the fact that the disease process was no longer present.

At the final meeting the parents were asked if these meetings would have been more helpful to them if they had been held during the acute period of their child's illness. The answer was: "It might have been different if you had told us this earlier." The leaders, however, wondered if this were not like talking about the last war. It was easier to talk about what they had already gone through than to deal with their present situation, such as the need to permit their children increased activity. It was clear that helping the child adjust to getting well was more difficult than helping him to accept illness.

Throughout the period of the meetings, the staff continued to meet regularly to review reports of the discussions. An evaluation of the project was made by the group leaders after the last meeting, and the medical social worker was appointed to summarize the project.

The leaders asked themselves two questions: (1) What did the parents gain from the experience? (2) What did we as staff members learn from it?

The parents had been encouraged to feel free to return to the clinic and talk with any of the leaders. It was anticipated that they might have further questions about problems the group had discussed. The two doctors who acted as leaders noted that in clinic contacts the parents seemed to carry over a changed attitude toward them. They were able to ask questions of the doctors, which they apparently could not have done previously. One value of the group then was seen in the improved doctor-patient relationship.

Changes In Parents Noted

Although the group experience seemed to reduce parent anxiety, it did not eliminate it. A month after the conclusion of the group meetings, one mother called her doctor, expressing concern because her daughter had come home from school that day after failing a test and had begun to cry. This led to nervous, jerky movements and the mother thought it might be the beginning of chorea. The staff had some reason to believe that prior to the group meetings this mother might not have been willing to call the doctor in a similar situation. Also, she now showed increased awareness of possible cause-and-effect relationships in regard to the chorea-like movements of her child.

It seemed to the leaders that the group meetings had made the hospital less formidable to the parents. They seemed more relaxed about the disease. One father bluntly stated: "I feel better about rheumatic fever." In the group the parents were able to discuss problems related to the illness, which they had not been able to do before. They seemed to feel safer in a group and to recognize that their concerns were not unique, and thus could raise questions that they would not bring up in the clinic, even when they were repeatedly seeing the same doctor. The assurance of, and through, the group was based on a kinship; they had gone through the same experience.

The leaders felt it would be impossible to measure the value the project had been to themselves as a learning experience. It gave the staff a new understanding of the meaning of illness as a family experienced it. It was an eye-opener to become aware of parents' questions and attitudes that seldom would come to light during clinic visits. The planning group found it valuable to observe how a group approach could help families in adjusting to the child's illness.

A great deal was learned about team relationship through the process of working and planning together. This process carried through even in writing up the project. It was clear that the preliminary planning had been extremely important. The purpose of the project needed to be accepted and understood by the total group. This had to be a gradual process. Even with extensive planning, improper selection of parents could have defeated the goals of the project, since discussion depended on having a fairly homogenous group. There was a feeling of purposefulness about the meetings and there was good group solidarity from the beginning.

The project demonstrated to the participants that there was value in having group meetings for parents of children with rheumatic fever. The planning group did not consider the results conclusive since tangible benefits for the parents could not clearly be defined. The experience, however, provided the staff with an opportunity to observe the potentials of the group approach as one way of helping families in their adjustment to the child's illness. The knowledge that the participants gained about parent attitudes, the opportunity the meetings provided to observe group interactions among the parents and their attitudes toward the clinic staff, the personal experiencing of the group process within the planning group, were unexpected by-products of the project. In retrospect, we see that the educational value to the staff may have exceeded the educational and therapeutic values for the parents.

This experiment has provided a basis for further study of the value to parents of group experiences in a rheumatic-fever program.

OCCUPATIONAL THERAPY FOR RHEUMATIC AND CARDIAC CHILDREN*

MICHI YASUMURA AND JANET S. BALDWIN

The consideration of the patient as a whole is an acknowledged requirement for good therapeutic results in medicine. Play is an integral part in the growth and development of children and therefore must be included in planning for their total care, particularly during long-term hospitalization. This may be provided in a general hospital through a recreational and occupational therapy program of medically suitable activities, with the purpose of favoring the best possible adjustment for these children and fostering continued normal development.

The purpose of this paper is to report on such a program developed for children hospitalized with heart disease or rheumatic fever with or without cardiac involvement. This project was initiated as part of a two year pilot study on various aspects of the total care of the rheumatic and cardiac child. A registered occupational therapist guided the program and supervised the volunteer workers who spent varying periods of time on the wards. These "toy ladies" or "substitute mothers", recruited by the recreation service for children of Bellevue Hospital, received special orientation in the purposes and execution of this program. Having demonstrated its value this program is being continued through combined support from the hospital and the recreation service.

Emotional Stresses of Illness

Certain well recognized and basic factors concerning the effects of illness and hospitalization on the child should be reconsidered by the therapist or another member of a hospital staff when organizing a program which will help to fulfill the needs of hospitalized children. Under normal circumstances, the healthy and secure child has ample scope to give expression to

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his physical and emotional needs. He is usually exuberantly active, insatiably curious and seemingly able to absorb any amount of healthy love and affection along with recognition and approval. Through play, his natural medium of expression, he learns about himself in relation to others and his environment as he develops many of his physical and mental resources. Play is his main occupation, and exercises all his energies and imagination. In cooperative as well as competitive play with his contemporaries, he has the opportunity to exchange ideas, match skills and compare notes on life experiences all of which are a part of growing up and important to personality formation. For the hospitalized child the avenues of expression through play are greatly curtailed at a time when his emotional needs are heightened by the factors both of illness and separation from home. His total activities are limited not only to indoors but in many instances are further restricted to the confines of his bed.

The occurrence of illness may effect many and variant changes in a child. His reactions and behavior are altered by the illness itself; irritability, restlessness, capriciousness and a greater need for security with increased demands for attention are all part of the picture. The range and degree of such manifestations are only partially dependent on the type and severity of the illness and treatment necessary. Other equally important influencing factors in the variation of reactions under stress of illness are the basic emotional pattern, security and training of the individual child prior to the illness as well as the reactions and attitudes manifested by his parents concerning the illness.

Hospitalization of a child in the majority of cases is attended by additional stresses and problems. The fact that hospital care is considered necessary frequently heightens the degree of parental anxiety which is readily transmitted to the child. The fears engendered in children concerning an illness are far more frequently due to associated events than to their own knowledge of the seriousness of the disease. Indication of a child's memory of the alarm and confusion which may occur in the home preceding hospitalization is illustrated in the following account given by a 5 year old when telling a story about "a little girl going to the hospital". "Mother called doctor. Mother said if she couldn't eat her lunch she'd have to go to the hospital. Mother called doctor. Doctor called mother. She couldn't eat. Mother scolded her. She couldn't drink. Mother cried. Boy called father, nurse called doctor. Mother combed her hair. She felt sick. Yes, yes, mother. No. no, mother. Doctor said 'go to the hospital'." Whatever fears exist, they are readily increased with admission to the hospital and separation from parents and the particular love and warmth the child may have had at home. Frequently the child feels that he is being abandoned as one small boy kept reiterating through his tears, "My daddy brought me here: my daddy left me here; will my daddy come back?" As part of this fear of rejection some children may interpret an illness as punishment with hospitalization a form of discipline. It is difficult for them to accept or find any comfort in parental attempts at reassurance that hospitalization "is for your own good." There are usually the added fears created by unfamiliar surroundings and adjustment to care by strangers. The child must also learn to share the attention of the hospital personnel with others when his individual need for affection is enhanced both by illness and separation from home. The various laboratory tests and necessary medications add other burdens of disagreeable experiences and fears. In the face of these emotional stresses the child is confronted with curtailment of his usual type of emotional outlet through physical activity. In addition to these stresses there is likely to be boredom, a combination sure to create difficulty in the adjustment of any hospitalized child.

Problems related to rheumatic fever and heart disease. To these factors which will affect hospitalized children in general there are additional problems in children with heart disease and active rheumatic fever. Primarily one is dealing with the effects of a relatively long-term illness. Bed rest for active rheumatic fever is not a matter of days but of weeks and frequently months, and is usually followed after discharge from the hospital by a period of time in a convalescent home. Such length of separation from the normal developmental experience of home and community enhances the importance of special efforts to provide the child with a hospital program of positive experiences and outlets to allow for continued healthy development of the personality. Secondly, it must be stressed that because active rheumatic fever is a disease which may recur, readmission to the hospital may be necessary in the future. Therefore favorable reaction to hospitalization is most desirable. Another factor important in dealing with rheumatic fever is the recognition that in a certain proportion of cases there will be irreversible heart damage. Where this damage is of sufficient degree these children will have to learn to adjust to some permanent limitations of their activities. Hence the maintenance of a positive outlook on life and of continued growth towards real maturity of mind and emotions in rheumatic and cardiac patients is of vital importance both for their present and future adjustments.

In relation to the long term bed care these children often have a source of distinct conflict in their difficulty of understanding the nature of their illness and necessity for such bed rest and continued medical treatment. When swelling and pain of the joints is present in active rheumatic fever this is an obvious and real fact to the child and can be accepted as such. This is usually but a transient event and of least serious import in the course of active rheumatic fever. The saying that this disease "licks the joints but bites the heart" is a somewhat dramatic statement which, however, contains the truth that degree of involvement of the heart is of paramount importance in the individual case. This necessitates frequent examination of the heart by various clinical and laboratory measures and directs the child's and parents' attention and concern to this organ. Children have considerable difficulty in understanding a portion of the body which they cannot see and therefore have vague and confused ideas concerning actual or possible heart disease. Many of them are aware that this is a vital organ both from their own knowledge of anatomy and from comments overheard in the past about adults dying of "heart attacks" and they may have distinct personal although frequently unexpressed fears. On the other hand except when marked rheumatic inflammation of the heart is present the child neither has pain in the region of the heart nor feels particularly ill. It is hence baffling to him why he must rest in bed when actually he feels full of "up and do" once the acute phase has passed and obvious symptoms have disappeared. Although the physician tries to explain the nature of the "sick heart" to the child in terms which are understandable and yet not alarming, this is a difficult matter in terms of interpretation. It is certain that many children must consider their treatment as a matter of adult and medical authority without any real comprehension of why they must accept the rules of such authority. They do not even have the "badge of sickness" such as they see in the bandages and casts of the surgical and orthopedic patients. It is more than easy to see why a rheumatic fever patient may profoundly resent the bed care, the repeated blood tests and certain forms of treatment necessarily given by hypodermic injection. Despite all these features it is remarkable to see how the vast majority of children do adjust to hospitalization especially when provided with satisfactory and medically appropriate means of emotional outlet.

ORGANIZATION OF THE PROGRAM

In our experience the facilities of a recreational and occupational therapy program have proven to fulfill many of the needs of these children. It is possible that the therapist and workers can bring a special type of support, understanding and means of outlet to the child largely because they are not identified either with the medical personnel or with anxious parents. This recreational program represents a pleasurable aspect of hospitalization, and the knowledge that the program is still in existence eases the tensions of children who are readmitted for further treatment, a fact often commented on by medical observers and parents alike.

To maintain self confidence and stability children must have the opportunity to express their aggressive impulses. Illness and hospitalization tend to increase tensions. At the same time, however, these circumstances necessitate the curtailment of those strenuous types of activity and competitive play which had previously afforded these children opportunities for outlets and self assertion. To solve this problem the purposes in the organization of a hospital recreation program are to provide a range of substitute activities which are physically safe at various advisable levels of exertion, and then to encourage the children to express and release their aggressive impulses through such medically acceptable outlets. In an atmosphere as permissive as possible the positive aspects of what is a desirable activity rather than the negative aspects of what is prohibited should be emphasized to minimize feelings of invalidism, to reduce persistence or development of emotional stress and to achieve release of mental and physical tensions. The program should not only serve as an outlet but should stimulate and meet the interests of growing children.

Recreational wants of the child are relatively easy to satisfy while he is acutely ill. Fever and the accompanying fatigue contribute to his listlessness, and the mere presence of an adult ready to read a story or participate in play for short periods of time is sufficient. However, with improvement there are demands for more activities and the desire to return to forms of play participated in prior to the onset of illness. The period of slow regression of active rheumatic fever as well as the time when adjustment to limitations must be made in those cases where heart damage has occurred are the phases which pose the most challenging aspect of a program of recreational and occupational therapy for the rheumatic and cardiac child.

Close contact of the director of the program with doctors and nursing personnel permits exchange of information relative to medical, social and emotional needs of the individual patient. Activities can then be geared in accordance with the amount of physical exertion the rheumatic or cardiac status allows at a given time. An equal consideration should be given to the individual emotional needs as to the formulated outlines of "graded activity" and "cardiac classifications." The activities must be developed around the individual child's interests and desires as well as directed into both constructive and cooperative channels. Of the various methods and techniques explored in the project at Bellevue Hospital a report is given of some of those which seemed to provide the most beneficial as well as practical activities on the wards.

The regret has been frequently expressed in the past that liaison between medical and occupational therapy personnel may be difficult. Experience during the existence of this project, however, showed keen interest of the medical personnel and their cooperation towards the success of the program which they considered an integral and essential part of treatment.

Outlets through individual activities. The importance of meeting individual needs must be kept in the forefront of attention in the provision of appropriate outlets. The problems caused by illness and long term hospitalization vary greatly as previously described and must be approached on an individual basis. The child may react with depression and withdrawal and only through individual attention can he gradually be drawn into accepting and being accepted in group activities. Tense, fearful, aggressive or destructive reactions in like manner must receive individualized outlets which ultimately lead to greater relaxation and cooperation in the total hospital care program. Attention to special interests and talents with specific efforts to bring these out and encourage their development in the individual child aid in increasing his sense of personal worth. Two instance may serve as illustrations:

Billy, a seven year old boy with active rheumatic fever was very resentful at the time of admission to the ward. He demanded a great number of toys and was generally disruptive during the recreation period. His attention span seemed to be limited, and at the same time he was extremely destructive of toys. Billy was given an old alarm clock and screw driver and was told that he could do with the clock whatever he wished. He could not at first believe his ears and asked again if he *really* could do anything he wished with it, requesting step by step confirmation of this as he dismantled the clock. Finally, as he uncoiled all the springs and spun the wheels on his table, many of the tensions which apparently existed in him seemed to relax. He became more cooperative and less interested in destructive activities.

Edward, a 12 year old boy, was admitted twice during a two-year period. Although usually cooperative and cheerful, it was occasionally reported to the therapist that he was a behavior problem and a disruptive influence on the ward when the nurse was alone and busy with hospital routine. Since he showed a particular liking and dexterity in leather work, he was encouraged to go beyond the usual projects and make articles for exhibits and demonstration samples. Although patterns were provided at first, he soon proved to combine his knowledge with his own ideas and fashioned many original articles. At the same time, his skill with construction toys warranted special attention to develop his talents along these lines and advanced equipment was provided. Upon his second admission to the hospital, his assistance was enlisted for teaching other ward patients in the construction of various projects while he also contributed to the repair of toys.

As in these two examples, there is a positive correlation between opportunities for self-expression and cooperative behavior with most children. Easing of individual problems also decreases group tensions as the uncooperative and disruptive child adopts more acceptable attitudes.

Manual activities allow for a wide range of appropriate outlets. In provision for free expression, extensive use has been made of such materials as clay, paints and crayons. With a minimum of physical effort these provide media for emotional projection. To allow as much imaginative scope as possible the children were unsupervised as to subject matter and little guidance was given as to techniques to prevent tensions in this area. In keeping with their individual capabilities they improved their skills or achieved expression through color combinations with obvious signs of satisfaction. A large bulletin board was mounted on the ward wall for display of paintings and drawings. There was no selective criteria; all pictures merited temporary hanging as they were produced. Although an activity such as the use of hammer and nails with cork boards needed closer supervision this seemed to provide for considerable release of physical tension with but little physical effort.

In the employment of craft activities attention was paid to their value as a means of exploring and utilizing skills rather than insistence that the finished article meet with adult standards of perfection. Whatever ideas the child contributed in working with the materials was wholeheartedly welcomed and much credit was given on the creation of original patterns and designs. Some startling attractive projects in leather work, needle work, copper foil, copper wire and felt were produced through such encouragement. While learning manual techniques the child was at the same time given a sense of purpose by considering the use of such articles not only for himself but as possible gifts for his family or friends. When interest was evinced in a particular activity, encouragement was given to explore its further potentialities towards the development of permanent interests and hobbies. Their usefulness in the hospital to the child is not their only asset. If in the future some limitation of physical activity is necessary, these newly acquired hobbies or broadened interests lay the groundwork for agreeable, useful as well as a suitable quiet type of endeavor during and beyond the convalescent period.

Among the games adaptable for bed patients beyond the acute phase of sickness, chess was found to be one of the most popular for both boys and girls. Interest was initially aroused by introducing it as a Chess Club, membership for which was gained through winning a "Bellevue Chess Club" button awarded to each as he learned to play. The children teamed up among themselves, helped new patients with the game, and often played with doctors and nurses. Interest in chess has proven to carry over both into convalescent homes and family life. A volunteer whom the children call "Chess Lady" comes regularly to the wards and whenever possible has enlisted the assistance of recognized experts in the game. The children are delighted to match their skill with the "Champs". Although all games including chess have an element of the contest in them, competition is not emphasized and tournaments are never conducted since it is felt that during hospitalization anxieties about winning or losing should be kept to a minimum. It is explained to them and the children accept without difficulty that the "Chess Lady" or "Champion" would win because of their greater experience in the game. In all games, winning "set-ups" for the children are usually explained as such. A realistic attitude interpreted in kindly manner is helpful in the effort to prevent the development of a subtle form of invalidism. It is important that a child should not consider his incapacity as a reason or means by which normal life experiences will change their usual course in his behalf or at his command.

In all activities as much freedom as possible is given in the selection and use of equipment, toys and games suitable for various age groups. Restriction of use of certain inappropriate or delicate articles may be indicated because of lack of ability or experience or destructive tendencies. This requires understanding in the substitution of another more suitable medium for the individual needs. Certain modifications of program may be necessary at times but total denial of participation in the recreation period as means of punishment for past or current misbehavior is carefully avoided.

Children enjoy learning about subjects allied to projects they create. Thus provision of appropriate books about means of transportation at the time model boats or trains are being constructed can enhance the recreational aspects with broader educational values. The growing of seeds and caring for plants on the ward provided an opportunity for learning about germination and growth. A segment of agricultural procedure was demonstrated when the children grew grass in aluminum trays and spoke of "plowing under one crop" in order to plant more seeds. An indignant complaint by a child that "my plant won't look at me—it keeps looking out the window" made possible further explanation about necessity of light and sun for growth. Planting terrariums and setting up an aquarium on the ward affords many opportunities for the introduction of nature study, which can then be amplified by means of books and pictures as well as by the use of mounted animal, insect and plant specimens borrowed from museums or other educational sources.

Through the medium of films such material of interest can be obtained in the form of "shorts" on subjects of nature, travel, adventure and sports. The movies are of course very popular, being a familiar form of entertainment. Provisions were made for showing films once a week and this was an event marked with keen anticipation. To avoid films which greatly overstimulate or cause anxiety to the children careful screening is important for the selection of appropriate presentations. A long "Western" for example would not be advisable both because the prolonged tenseness would prove fatiguing and also would tend to promote continued overactivity in the group due to the usual tendency of children to reenact exciting scenes.

Group activities and community interests. Since hospitalization for rheumatic fever may keep the child away from his former social group over long periods of time hospital group activities as well as measures to help maintain a feeling of contact with his family and the community at large are of real importance.

It is essential that the child be helped where necessary to accept and to be accepted by the group on the ward. Maintaining and developing the ability to relate to others in the principles of democratic living is particularly necessary for future adjustment. Hence the importance of group activities which provide opportunities for the type of experiences in which all can participate and also help create a sense of community life within the ward. Furthermore, group experiences draw attention to others and away from the illness.

Difficulties that one might have expected in group activities for reasons of differences in ages or of ethnic origin were found to be minimal. Special care was necessary not to favor anyone. Occasionally it was helpful to bring such problems into the open by group discussions or to talk them over with individuals. There were differences of opinion, but also much sharing and exchanging of ideas. Important decisions were often relegated to discussion and a vote. Allowances for leadership and the designation of certain responsibilities for the older members were worthwhile. The older children were also encouraged to help the younger ones in many of the activities. In order to create or reinforce a sense of pride in the cultural background of children with language handicap or from a minority group, various positive approaches were utilized, such as learning and exchanging songs of other countries, basing party themes on different cultures, encouraging stories to be told and written about interesting facts in varied backgrounds and choosing films on pertinent subjects. It was constantly amazing how quickly cultural and language differences could be bridged in the group situation.

Group singing is very popular including the collection and exchange of new songs and the making of song scrap books. Although the singing usually comes about spontaneously it can be introduced for quieting or relaxing purposes when this seems necessary.

Putting on a play or puppet and shadow shows interested most of the children. It is important that all participating be relaxed about the production and do not strain for quality of performance. A successful performance of a play was based on the story of *Cinderella*. The children reconstructed the parts to fit into the ward setting. They made up their own lines, designed and made their costumes and pooled their ideas for staging the play. The more active parts were taken by the ambulatory children who very skillfully maneuvered their action to relate smoothly to actors who were bed patients. Each child took some part in this production and derived a great deal of satisfaction and sense of achievement from the fact that the audience clapped at the end.

Another avenue of expression and opportunity for cooperative effort is provided by the *Children's Newspaper*, a set of several mimeographed sheets which is printed periodically. The younger children often dictate their stories to the older ones who also assume the responsibility of stapling the pages into edition. When the newspaper is distributed the contributors display obvious pleasure and pride in pointing out their own stories, riddles, poems or pictures to nurses, doctors and visitors. Continued interest in the newspaper can be seen from the fact that many children have sent in contributions after discharge to home or convalescent care.

All children like parties and they readily catch the spirit of planning together, whether it be a party for a birthday, a holiday, a special event, or just for fun. They participate actively in the making of cards, gifts, favors, ward decorations or costumes. They are ingenious at giving the event a special flavor of intimacy. One 12 year old who asked to plan her own birthday party decided to send invitations to each child on the ward creating the atmosphere of their going to a party. On the eve of the party cards and gifts are prepared on the ward in the presence of the birthday child, but they all cooperate to maintain a make-believe of secrecy so the event can have all the elements of a surprise.

Many children feel that a party is no party without ice cream and cake and although these are often provided, they have much satisfaction in the making of their own refreshments. Popcorn popped on the wards in an electric popper and the making of pink lemonade have been the main events at some parties. They have also enjoyed making candies, icing and decorating cookies and stuffing dates and prunes. Even though fireless recipes are used, the children call this activity "cooking" and an atmosphere of home prevails.

Maintenance of outside interest and contacts. Under normal circumstances outside the hospital, children have the opportunity of broadening their scope of interests through social contacts and participation in community activities. For children in the hospital means must be provided through group activities and individual encouragement to maintain and foster such relations and interests and to prevent a sense of isolation from the outside world.

In order to help maintain emotional ties, letter writing and the making of gifts for their family and friends were encouraged. Interest in other groups of children was brought about by exchanging greeting cards and by arranging joint projects with other wards. One hospital service project in which the cardiac children engaged was the making of special toys for deaf patients. The same spirit and interest was seen in the spontaneous collection of toys from their own supplies for overseas children.

Various community activities can be brought into the ward setting. Cub Scouting was appropriate in the hospital because of its readily adaptable program for indoor activity. The sponsors, the scout master, the den chiefs and den mothers who come in from the outside for weekly meetings help to keep alive the feeling of contact with the community. A Campfire Bluebird group on the girls' ward also fulfilled these objectives. Provision was made for continued membership in neighborhood clubs.

Actual participation in neighborhood activities was possible by having the hospital children enter exhibits in craft and other shows held at outside clubs. One such exhibit for a nearby flower show consisted of a scene of a Puerto Rican house and garden built on a large aluminum tray. The enjoyment that the children experienced in creating the cardboard house and palm trees and growing the grass for the lawn was obviously augmented by the knowledge that they were taking part in a community event.

MATERIALS

Types of material. Toys, games and other equipment were selected for their manipulative, creative or dramatic value. In order that the children may continue their hobbies and interests at home, emphasis was given to play material and craft supplies which could be obtained with relative ease by a family of modest means. For example, milk cartons were often used in making buildings, trucks and other vehicles and also as containers for planting seeds. Inexpensive plane and train models have been supplied, but this was followed up by using scrap pieces of wood from carpenter shops to fashion other models. Used greeting cards, discarded stockings, upholstery leather scraps, shoe boxes and oatmeal boxes were a few items utilized.

Use of material. In the use of toys and games there was generally the tendency on the part of adults to expect distinct differences from boys and girls. It has been observed, however, that given the opportunity the children themselves do not always make the traditional choices. Boys have played enthusiastically with doll furniture and dishes, as have the girls with tinker toys and trucks. Boys do not shun a certain amount of needlework and enjoyed cooking as wholeheartedly as girls. Props such as grown-ups' clothes or doctor kits encouraged informal dramatic play allowing the acting out of phases of family life or hospital experiences.

With wide divergence of ages on the wards, the greatest difficulty encountered was in the pursuance of certain craft projects which seemed particularly important for older children but too advanced for the younger ones. Even though these activities were modified, in some instances the younger members were not satisfied and tended to be disruptive by their insistence on having the same things. Under such circumstances the more advanced crafts were undertaken on those occasions when a sufficient number of volunteers could provide equally appealing separate activities for the younger group.

Source of material. Most of the material and equipment used in the program were selected from supplies donated to the children's recreation service. The community at large was tapped through interested individuals, clubs, social and educational organizations, business firms and toy supply houses. While many of the donations of scrap materials such as leather, fabrics, paper, used toys and games, came through personal contacts, much of it has come as a result of newspaper publicity. What was not obtained by donation, such as certain educational toys and craft materials, had to be purchased. It was found that continuous effort to keep the public informed as to the needs of the children was necessary. Many individuals and supply houses are receptive to the idea of regular donations to help hospital children. A slide projector and movie projector were donated through funds raised by a men's club and films and slides are regularly obtained through free sources such as foundations, museums and commercial organizations.

CONCLUSION

Children hospitalized for active rheumatic fever and rheumatic or congenital cardiac conditions have special needs due to various factors in their illness which heighten physical and emotional tensions and may create problems in the immediate and future psychologic adjustment of such children. The length of hospital care which is frequently necessary separates them from family and other social ties and contacts over long periods of time. At the same time restrictions are imposed on the accustomed outlets of strenuous play and competitive activities whereby a child normally finds scope for self assertion and release for physical and emotional tensions. Hence there is risk of interference with normal psychologic growth and development. In view of the possibility that certain of these children may have recurrence of rheumatic fever requiring further bed rest or may have to adjust to certain restrictions due to permanent cardiac damage, importance should be given to measures which prevent warping of the personality, which give opportunity for a healthy emotional development and which foster as positive an outlook as possible.

As part of the total physical and emotional care of such children a hospital program for recreational and occupational therapy can be of great benefit and value. It can help the child over the difficult adjustment period and favors a more relaxed attitude toward the illness itself and necessary treatment. Such a program offers a range of substitute activities whereby satisfactory outlets for tensions may be achieved. Types of activities are geared in the individual case to the degree of physical activity appropriate to the medical condition at a given period of time. These activities should not only provide outlets but also stimulate and meet the interests of growing children, hence advancing their scope of interest and supplementing academic education. Through group activities and measures which relate hospitalized children with community activities cooperative experience is encouraged and a sense of isolation prevented.

Evaluation of the ultimate effects and benefits of such a program reported in this paper will necessitate longer follow up. However, it is expected that the observed better psychological adjustment during hospitalization has helped to reduce damaging interference in the growth of the child's total personality. Thus better future adjustment of the individual child may be anticipated.

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SECTION V

CHAPTER I

SPECIAL HEALTH PROBLEMS

SPECIAL HEALTH PROBLEMS, BY VALERIE T. HAWKINS

ADOLESCENTS WITH SPECIAL HEALTH PROBLEMS, BY FRANCES G. KOENIG AND ELENA D. GALL

SPECIAL HEALTH PROBLEMS

VALERIE T. HAWKINS*

During the past few decades we have made tremendous strides in fulfilling the goal of providing equality of educational opportunity for all children in our American democratic society. Children with mental and physical handicaps are beginning to reap full benefit from increased interest and effort, on the part of society at large, to provide educational opportunities for them. Throughout the country, communities both large and small are setting up varying types of programs in special education. Specialized departments, classes, and schools, with special equipment, specially trained teachers and other specialized personnel, are beginning to appear. Both private and public schools, hospital and community agencies, are assuming responsibility for initiating and enlarging existing programs for educating exceptional children.

This chapter will concern itself with children with special health problems, exclusive of the deaf and blind. Children suffering from tuberculosis, rheumatic fever, heart disease, malnutrition will be considered. In addition, a miscellaneous group of children, with special health problems of hemophilia, diabetes, epilepsy, allergies, and convalescence will be discussed. This group of children require some adjustments in the educational program as it is set up for normal children. Special equipment, intensified services, teachers with special training, and a modified school program (including methods and curriculum), are needed in some degree, if this group is to be educated to the fullest, within the limitations imposed on them by their handicaps.

The health of the physically limited child must come first. All school programs for them must be selected and adjusted accordingly. Close cooperation of the school and other disciplines, concerned with the health and well being of the child, is of vital importance. Coordination of services,

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*The author has drawn heavily from the excellent pamphlet, *Children With Special Health Problems*, published by the National Tuberculosis Association .—Editors.

utilizing a teamwork approach, is being recognized more and more as the approach out of which can grow the best possible program of education and care of the handicapped child.

Tremendous strides in medical science, and successful surgical intervention have changed the picture of prevention, treatment, cure, and control of some special health problems. It is therefore important for those engaged in programs of education and care of this group of exceptional children to keep abreast of modern medical advances. For this reason, this chapter will give attention to modern medical viewpoints as well as particular problems growing out of the disability areas. There will be no attempt to treat these health problems fully*. They will be defined and discussed generally, in terms of problems and suggested programs for teachers and prospective teachers. It is hoped that this treatment will enable teachers to recognize and realize the real import of program adaptations for these groups.

TUBERCULOSIS

Tuberculosis is a communicable disease that is produced by the invasion of human tissues by a microorganism, the tubercle bassilus. The disease is transmitted by direct contact with an active tuberculous, the vector, who harbors and disseminates it. While infection does not inevitably result in disease, it is always perilous because of the danger of recurrence later in life. Infection does not give absolute protection against subsequent infection. The advent of anti-microbial therapy, and the use of new drugs, have reduced the general death rate. The death rate from tuberculosis in children under 15 years of age has fallen more than 80% in the past 25 years.[86]

There are two kinds of tuberculosis, the primary and the re-infection types. The primary type may run a benign course in children and is usually non-communicable, while the re-infection (adult) type, sometimes referred to as post-primary, is often hazardous and communicable, and has signs that are readily detected by the observant parent or teacher. While the primary type is most often found in a population of tuberculous children, other manifestations may also be discovered in lesser degrees. These are military and meningeal, tuberculosis meningitis, and bovine (rarely seen in the United States today). Tuberculosis of the skin, lymph glands, kidneys, and intestines are also found among children.

A positive reaction to tuberculin tests, such as the Mantoux or patch test, would indicate that infection has taken place. Fortunately, the majority of people who are infected do not develop fatal or clinical disease. The length of time between infection and the actual development of the disease is so variable that a manifest lesion may appear shortly after infection, later in adolescence or early in adult life, or it may never appear. If there is evidence of infection on basis of a positive tuberculin test, determination of clinical tuberculosis is achieved by chest x-ray, sputum and gastric tests and other methods of clinical detection.

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*Further discussion of many of these problems will be found in other sections of volumes II and III of this work.

In recent years there has been a decline in public interest in tuberculosis. This has been partly attributed to wide publicity concerning medical and surgical advances in the control of tuberculosis. It must be kept in mind, however, that there are some tuberculosis patients who cannot be helped by surgery or drug therapy. Further research is needed in this area. Large scale programs of control and prevention should be encouraged. Ideally, annual tuberculin testing of each person from birth throughout life, and annual X-raying of positive reactors, should be a part of a good program. This is impractical for most communities. Annual chest X-rays, especially for children under 15, is both possible and feasible and would be an extremely valuable program.

Prevention of tuberculosis on a large scale basis can take place through good personal hygiene, optimum standards of cleanliness, good nutrition, and sound family adjustment. Proper treatment of a patient removes the source of contagion. However, the possibility of contact with undiagnosed cases continues to be a problem of concern.

Present day treatment shows a shift from long periods of bed rest to short periods of hospitalization and completion of 'curing' at home under close medical supervision, or treatment at an out-patient clinic. Education of parents, siblings, and the community at large, to accept and help care for such a patient, is essential to successful outcome of this type of treatment. With the patient who is drug-resistant or cannot be helped by surgical intervention, bed rest is still prescribed.

There are two types of tuberculous children who may be allowed a normal school program. The first is the child who is found to be a positive reactor to a tuberculin test but whose X-ray reveals that the lesion is well healed. The second is the child who is exposed to active tuberculosis in the home but does not show any clinical evidence of the disease. Both should be given periodical medical examinations to determine whether there has been any change in health status. These two types do not endanger other children.

Any child with active tuberculosis has no place in the classroom with other children. He should be treated in a hospital or in the home, as medically recommended. His educational activities should be discontinued until it has been medically recommended that they may be resumed. If at all possible, educational activities should be resumed while the child is still hospitalized. This should be done on a limited basis, not too soon, and increase should be gradual. Resuming activities early is important to his morale, and unnecessary delay may prolong his rehabilitation period unnecessarily.

It is the responsibility of the hospital, in cooperation with the local board of education, to provide an adequate and well trained teaching staff, equipped to carry on the education of the hospitalized child. Whenever possible, this teaching should be carried on with groups of children. It is understood, however, that some may require bedside teaching. The child curing or convalescing at home should continue his education under the supervision of a homebound teacher. The medical social worker on the hospital staff should take the initiative in arranging such programs through the board of education. His hospital school program should start where he left off when he was hospitalized. Likewise, his home program should begin where he left off when he was discharged from the hospital. This continuity is important to his continuing interest in and motivation for learning.

A child who has primary tuberculosis of a non-infectious type, for whom reduced activity is advised during the healing stage, can be given regular school assignments under a homebound teacher.

No child should return to a classroom with normal activities unless he has been in an arrested state for 6 months. In addition, lesions should have shown continued stability, and sputum and gastric washings should have been negative for this same period of time. After he has returned to school, the classroom teacher, in cooperation with the principal, should arrange his program according to medical recommendation.

Few, if any, special facilities are set up for the adolescent with tuberculosis. Bedside and homebound teaching seem to constitute the program for this group. In some larger communities, a special program has been set up in cooperation with the State Division of Vocational Rehabilitation. These are restricted to patients with 4 hours of approved daily activity. This must be exclusive of traveling time.

Rheumatic Fever

Rheumatic fever is an acute disease often resulting in chronic lesions. It attacks the connective tissues of the body and causes inflammation of the muscles, valves, and outer lining of the heart. The cause of rheumatic fever is unknown, but it usually follows respiratory infection. It is believed that the disease is brought on by beta-hemolytic streptococci[3]. There is no one characteristic symptom; however, some primary symptoms are pain in the joints and continued fever. Other symptoms may be loss of weight, repeated nosebleeds, poor appetite, and pallor. More acute cases would show these symptoms and evidence of heart damage. In milder cases, the symptoms are fleeting and general. Rheumatic fever is not communicable; however, it often has a familial pattern. According to Wilson[27], the disease is "inherited' as a Mendelian recessive. It is found to be most common in temperate zones, and the incidence tends to be higher in winter and spring, than in summer and fall. Children are more susceptible than adults.

The average age of primary attack is around 6 years. It is uncommon prior to this age. Between the ages of 6 and 10, the incidence tends to be highest. Girls are more susceptible than boys. A primary attack may occur among young adults who live in crowded, unsanitary areas. Recent studies have revealed that there is no correlation between race or color and rheumatic fever. It has been found to be more common among the poor than among the rich. This is no doubt related to there being a greater tendency among the poor towards overcrowding, poorer sanitation, lack of adequate diet, and other environmental factors that would nurture and encourage the disease.

Some heart injury which we call rheumatic heart disease may result from rheumatic fever. This damage appears after recovery from the fever. If the child can be prevented from further attacks, the heart damage may be slight and he may live a normal, active life. If the heart is severely damaged, activities must be curbed accordingly. Every child who has rheumatic fever does not develop heart disease. Since rheumatic fever is a recurring disease, one attack does not protect the child from future attacks. The tendency for attacks to recur is lessened during the teens, and in some instances they stop entirely around the age of 16 or 17.

In controlling this disease, it is not necessary to isolate the child. Prevention of respiratory infection and organization of a complete program of care seem to be the best preventive and control measures.

The most important treatment of rheumatic fever is bed rest. Certain new drugs are also effective in bringing marked and prompt relief when acute symptoms appear. At present, there is some controversy over the effectiveness of some of these.

The bed rest is temporary but very important to curing and should be adhered to strictly until the physician prescribes otherwise. After the acute stage is over the child often feels considerably better, and it is difficult to keep him in bed, especially if he is convalescing at home. During the period of bed rest, the local board of education, in cooperation with the hospital staff and physician, should provide for bedside or homebound teaching.

Good supportive nursing care during the acute stages is very important both in the hospital and the home. The nurse can be invaluable in helping the parents and the child understand his physical limitations, the necessity of an adequate diet, and the importance of guarding against overweight. If the child is to make a satisfactory adjustment, educational and occupational therapy need very thoughtful consideration. Cooperation among the bedside or visiting teacher, the physician, the hospital or visiting nurse, and the therapist, is essential to good follow-up care. The school nurse can play an important part in the community program. She can give guidance to parents, teachers, and the community simultaneously. The school guidance counselor will find her an invaluable aid in giving vocational guidance to the child.

The largest percentage of children recover fully from rheumatic fever and can return to normal activity, as determined by the physician. About 1 out of every thousand will need special consideration because of heart condition that develops. For this group, special classes and special schools might be indicated. Problems such as transportation and climbing stairs also need consideration.

Both the child who has had rheumatic fever and his parent might need considerable help in overcoming fears concerning the amount of activity that is desirable. A good special school program should encourage them to participate fully in the recommended degree of activity.

HEART DISEASE

The heart disease that occurs most frequently in children is congenital, it accounts for approximately 40% of the cases among children[86]. Congenital refers to being born with some malformation or mal-functioning of the heart. Organic heart disease is produced by some other factor or factors and results in some alteration in the anatomical structure and function of the heart—though not in every single case. When the etiological factors that may produce heart disease do not produce the same, the child becomes a potential cardiac. Care should be taken to prevent the development of cardiac complications, if at all possible. A child who has had rheumatic fever but does not develop heart disease would be an example.

Bacterial endocarditis is another type of heart disease found in children. It is the invasion of the blood stream by bacteria that has the heart as the inflamatory focus. This may be produced after a tonsillectomy or some dental procedures and is usually at the side of some earlier damage.

Most cardiac children survive with the normal school routines. Very few require limited programs. Severe cardiacs may need to be placed in special schools or classes where programs are regulated to meet individual degrees of disability. Special equipment, such as elevators and ramps, may be indicated. Patient teaching and good vocational guidance are important.

Teachers should have some knowledge of the anatomy and physiology of the heart and the circulatory system, as well as the classification of cardiac conditions. This orientation will help them to understand intelligently, the importance of careful program planning for the cardiac child.

NUTRITION

The healthy, happy, vital, active child is the well nourished child. On the other hand, the child who lacks drive, zip, and vitality, and is listless and phlegmatic, is likely to be the undernourished child. We often think of the underweight child as being malnourished; however, a child can be overweight and yet malnourished if his food intake is not being properly utilized. Underweight and overweight are factors in malnourishment when they are true in marked degrees and when related to an abnormal growth pattern over unusually long periods of time. We no longer hold to the idea that these two factors, determined by an arbitrary standard yardstick of measurement, are significant. They are relative factors and should be evaluated in terms of body structure and familial patterns. Weight and height in children should be evaluated on individual bases, and significance should be attached to the relationship between these factors and the child's general health at the particular stage of his development.

Malnutrition may have some recognizable overt manifestations to observant parents and teachers. Some of these are poor posture, unusual tiredness, bleeding gums, pale mucous membranes, rough-dry-scaly skin, or greasy-flaky areas around the eyes, ears, and nose. A child may be apparently well fed and still be undernourished because his body is not properly utilizing the food that it is taking in.

Factors such as worry, fear, frustration, tension, depression, and anxiety may affect the appetite and consequently the nutrition. Aside from these emotional factors, and quality and quantity of food intake, poor nutrition may be due to disease, chronic fatigue due to inadequate sleep, and overactivity.

When a child is undernourished, some special provision should be made in his school program. Health conservation classes meet the needs of such a child by providing mid-morning and mid-afternoon snacks. The teacher in the regular class could make a similar type of provision for such a child.

The atmosphere of the classroom should be free from undue physical, mental, and emotional stress and strain. Moderate and regular play or activity periods should be provided, for these are valuable to the rehabilitation of this child.

The school nurse can assist both the parents and teachers in planning the school program. In cooperation with the school and the home, the nurse should see that every child is weighed and measured periodically and that he has frequent medical examinations. In addition, the nurse can assist in setting up a health education program in the school. A study of the child's individual diet should be an integral part of such a program.

Some Miscellaneous Health Problems

The classroom teacher should be acquainted with a number of miscellaneous health problems that might appear in her classroom population from time to time. Some of the most important ones are: hemophilia, diabetes, epilepsy, allergic conditions, and convalescence.

Hemophilia. Hemophilia is defined by Wintrobe[45] as "a constitutional anomaly of blood coagulation which depends on hereditary transmission of sex-linked, recessive Mendelian trait, and is characterized by a life long tendency to prolonged hemorrhage as well as markedly delayed coagulation time in affected males". This is not a rare disease. One in every 15,000 in the white population may have the disease in some form, from very mild to severe[55]. The milder forms do not require treatment. While it is a disease of the male sex, transmitted by the female to her offsprings, recently very mild forms of hemophilia have been found in female children. No specific cure has been discovered to date.

This disease can be detected by the presence of multiple bruises, with hemotomas (hard centers); continuous black and blue spots; ankylosis of the joints, habitual hemorrhage from various parts of the body, either spontaneously or following slight trauma; sub-cutaneous or intra-muscular bleeding; mucous membrane or internal bleeding (from mouth, lips, tongue); gastro-intestinal hemorrhage; and pulmonary plural bleeding. Hemorrhage of the brain or spinal chord, and bleeding of the bladder or kidneys may also be symptomatic.

Careful handling of the hemophiliac child is extremely important. Parents, teachers, and others coming in contact with him should help him avoid injury, trauma, unnecessary falling, and bruises. Because parents do not know how to care for the hemophiliac child, he oftens finds himself spending long periods in the hospital.

In the event of a hemorrhage, the immediate approach for controlling it locally is to apply cold and pressure to stop the bleeding. In cases of hemorrhage of the mouth, the child can be asked to suck an ordinary popcicle to bring bleeding under control. When the bleeding cannot be brought under control by local treatment, transfusion of fresh blood plasma must be resorted to. This is to elevate the prothrombin consumption, and is a job for a qualified medical person.

Crippling deformities may result from some forms of hemophilia. Both surgery and physical therapy are important aids in correcting and preventing such conditions.

No special school facilities are needed for the mild and moderate hemophiliac. Closer supervision, on the part of the staff and student body, is invaluable to his well being. The severe hemophiliac may need placement in a hospital school where he can receive the constant medical care and supervision needed.

Although further research is needed to make management of hemophilia fare more satisfactory, strides have been made in the area of diagnosis. The new prothrombin consumption tests has made the diagnosis of hemophilia more exact and certain; thus, treatment has become more rational[55].

Diabetes Mellitus. Diabetes is a metabolic disturbance. In this disability, the liver is unable to utilize and properly store the body sugar. When the islands of Langerhans, in the pancreas, are unable to produce the hormone insulin, this condition is produced. Sugar and other harmful substances accumulate in the blood stream and are eliminated by the kidneys in the urine.

The diabetic child is treated by controlling his diet and giving him periodic injections of insulin where indicated. If the disease is recognized and adequately treated, the child will have no difficulty and will be able to lead a normal life.

Classroom teachers should be aware of these symptoms: frequent urination, thirst, increased appetite of an unusual nature, abdominal pain, and loss of weight. They also know that if a diabetic child fails to take his insulin or if he develops an infection or fever, he may develop what is known as diabetic coma. Warning signs for this are thirst, fast deep breathing, nausea, headaches, and vomiting. If a coma should occur, the teacher should stretch the child out on a bench or on the floor and keep him warm until the physician arrives. The teacher should also know whether the child is receiving insulin so that she can guard his physical activities and see that he does not work too hard physically. Knowing that nervousness, sweating, dizziness and hunger are warning signs for insulin shock is valuable information for the teacher. If orange juice, sugar, or candy is given, insulin shock may be warded off. The diabetic child should be allowed to eat if he complains of hunger.

In the more severe cases, it may be necessary for the child to be placed in a health conservation class where he will receive closer supervision.

Normal growth is compatible with controlled diabetes, but there are many children with the disease who do not grow normally. Normal growth does not preclude the development of degenerative changes, but when there is definite deceleration or stunting, degenerative changes develop earlier and progress more rapidly. Some diabetic children show tendency to become obese between the ages of 14 to 18 years[89].

The diabetic child has a greater need for security, affection, and applause. He must learn discipline and responsibility early. Under good physical and emotional care, he will have normal intelligence. Remember that in some cases, frequent insulin reactions, of a severe nature, can and do cause irreparable damage to the central nervous system. Chemotherapy and antibiotic agents have made it possible to combat more effectively intercurrent infections.

Epilepsy. Epilepsy is a temporary disturbance of the electrical circuit of the brain characterized by seizures of varying degrees and intensity. During an epileptic seizure there is a temporary loss or impairment of consciousness without apparent cause. The exact cause of epilepsy is unknown; however, the conditions that bring about seizures may be injury to the brain, bodily disorders, and emotional upset action on an already disordered part of the brain.

Classroom teachers may find themselves confronted with cases of epilepsy so mild that attacks would be recognized only through very careful observation. In such attacks, there will be merely twitching of the eyelids and apparent inattentiveness or 'daydreaming'. They may also meet severe cases characterized by loss of consciousness and violent convulsive seizures in which the entire body shakes. In either case teachers should be prepared to handle the situation intelligently. Mild attacks should be overlooked; the child should certainly not be focused upon or embarassed in any way. Teachers should recognize what is happening and keep the environment free from the possibility of the child developing emotional upset because of her attitude or that of his classmates. In the case of the severe attack, teachers should not become alarmed. They should keep the other children from becoming upset by preparing them in advance. Since attacks last for such short periods, and complete recovery is expected, the epileptic should be allowed to have his attack with a minimum of interference. If dangerous objects are removed so that he cannot harm himself, and a tongue blade is placed in his mouth so that he does not bite his tongue, he will be relatively safe. Very few injure themselves during attacks. The child should be allowed to have complete rest afterwards because he is frequently completely fatigued and in need of rest.

Teachers, parents, classmates, siblings, counselors, and others coming in contact with the epilipetic child should be educated to the importance of their attitudes toward him and the influence of the same on his ability to adjust and accept his condition. At the same time, teachers should help the child handle the many prejudices that may confront him, through helping him develop a fearless and realistic attitude toward his condition.

Vocational adjustment becomes a problem of paramount importance to this group. Employers, employees, vocational counselors, and others coming in contact with the epileptic, on a job situation, should know something of the duration and frequency of attacks, behavior characteristics concomitant with these, and desirable treatment. The knowledge should be utilized in understanding and helping the epileptic to adjust. At the same time, the epileptic should be guided to choose a vocation wisely, avoiding jobs that may present potential hazards for him. He must recognize his vocational limitations.

Continuous medical treatment is recommended for the epileptic child. Some have been known to be helped by surgery. With this continuous care they can be encouraged to attend a regular class. Unfortunately, many epileptics are dismissed from school on a medical discharge and have no facilities available to them as far as education is concerned. This discharge is sometimes motivated by the inability of the classroom teacher to handle the situation. In still other instances, epileptics are in special schools. Finally, some severe cases are institutionalized.

Allergic Conditions. Allergic conditions most commonly found in children are asthma, hay fever, eczema, and uticaria (hives). By allergy, we simply mean changed or altered reactivity. Becoming allergic is determined by two factors: the capacity to become sensitive, and adequate contact with a specific substance. Allergies can be caused by many different types of agents and may be found in many forms.

Understanding the nature of different allergic conditions will aid teachers in planning programs that will take into account the child's special needs in regard to rest, hygienic conditions, food, and exercise[86].

Asthma is an allergic condition that is found frequently in a school population. The asthmatic child will experience difficulty in breathing due to swelling of the mucous membranes, spasm of the bronchial muscles, and increased secretion of mucus. With new medicines that make it possible for the asthmatic to increase tolorance to irritable substances, along with the possibility of riding the environment of these substances, episodes can be lessened and even prevented. Because the asthmatic child is often anxious and insecure, he may go into an attack when the situation is tense and threatening. Teachers can help by educating the parents, siblings, and classmates to help him develop greater feelings of security. Overwhelming mental and physical factors tend to increase attacks. These should be minimized.

Hay fever has symptoms of the common cold and may be suspected when a child has repeated series of colds at the start of the school year. The upper respiratory tract is involved in this condition, and it may become so severe that it will result in asthma. Simple measures, like using dustless chalk, may be an important aid to the child with hay fever. Teachers should be alert to the need to allow the child to be excused from school for medical treatment. They should also be aware of his sensitivity to various types of food and recognize the need for frequent rest periods if drowsiness and fatigue accompany the condition.

Skin conditions like eczema and uticaria are not contagious. Teachers can help children with such conditions by not making them more conspicuous. The emotional effects of his feeling too sensitive and feeling conspicuous, may provoke the situation and cause increased itching and scratching. Skin conditions are obvious and make a child feel different. This feeling of difference may produce psychological trauma thus aggravating the condition.

The allergic child can attend regular schools and classes. Teachers and parents should obtain specific help from the physician in helping to care for such a child and in helping the child care for himself.

Convalescence. The child who returns to the classroom after a period of convalescence should be given special consideration by the classroom teacher. This special consideration may mean the difference between a speedy, complete recovery and an unnecessarily prolonged convalescence.

It must be kept in mind that during his convalescence he may have drained himself of considerable strength, energy, and persistence. He may tire easily and be irritable and depressed at times. Teachers should recognize this and make provisions for it until he is back to normal. Frequent rest periods and limited physical activity, with gradual increase in the amount of activity, are invaluable aids. Most of all, the teachers' reassurance and sympathetic attitude toward the child are essential to his maximum and ultimate well being.

When a child falls behind because of a long period of absence from school, he may become anxious, tense, and worried, and develop, anxieties over the fear of not being able to catch up. Classroom teachers should not require him to make up back work and should give him as much individual assistance as possible to help him catch up sufficiently so that he can be at approximately the same functioning level of his classmates.

UTILIZING THE TEAM APPROACH

If children with special health problems are to have equality of educational opportunity, provisions must be made in the total programming and planning. A variety of special facilities, methods, techniques and devices must be available. Adaptations of the regular school and classroom programs must be made in accordance with the prescribed health needs. While the goal is to return the child to a regular class as soon as possible and if practical in his individual case, special classes, hospital schools and classes, sanitoria schools, residential schools, convalescent home classes, bedside teaching, and home instruction must be available to him in the interim.

Through the team approach to planning for the best possible program for the child with special health problems, he can receive the maximum gain from his educational experience. This approach provides opportunities for studying the child as a whole child, with different disciplines focusing on the various aspect of the child's growth and development. Bringing together findings in case conferences makes planning broader and more cohesive. The opportunity to collect, organize, and share in the evaluation of data concerning the child would appear to be educationally sound. Regardless of the method used, a thorough knowledge and understanding of certain factors is important. These are the nature of the disability or health problem, the child's basic ability and past and present school achievement, and the environmental factors. With this knowledge as a springboard, a sound and well directed program of study can be launched and carried out.

Members of a wide variety of disciplines will be called upon to contribute substantially to the education and rehabilitation of children with special health problems. Parents have the first responsibility, that of seeking the best possible professional help available, within their means. They should be encouraged to understand fully the nature of their child's disability and work hand in hand with all concerned with his health and welfare, from the beginning to the end of his treatment and rehabilitation.

Since we are concerned with children whose primary problem is a health problem, the physician becomes the key person giving guidance to the medical aspects of his treatment and care. Working hand in hand with the physician are nurses, therapists (speech, occupational, and physical), and health service program staff and personnel. Each one is important in this phase of the child's treatment, care and rehabilitation. Nurses (both hospital and public health), social workers (family welfare, medical and psychiatric), and rehabilitation counselors, are essential if a full program is to be carried out. Working jointly with these disciplines should be the school administration, staff, teaching personnel, and guidance counselors. Where there is a school nurse, it would be needless to say that she would make a valuable contribution. Cooperation, cordination of services, and a willingness to give assistance freely, should constitute the basic attitude and philosophy of the team.

The school administration should recommend modification in attendance laws and regulations, adjusting the length of the school day, and changing the kinds and amount of school activities for the physically limited child. These modifications should include allowances for special rest periods, additional individual instruction and guidance, and close observation and supervision by the teaching staff. Teachers should see it as their professional and moral obligation to carry out such adaptations.

In both teacher training and in-service training programs, provisions should be made for teachers to obtain knowledge and information concerning the nature of various types of special health problems among children. This information should be carefully integrated into a well formulated philosophy of education, laying the ground work for desirable teaching programs, methods, techniques and devices for teaching these exceptional children.

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ADOLESCENTS WITH SPECIAL HEALTH PROBLEMS*

FRANCES G. KOENIG AND ELENA D. GALL

Special education has grown considerably from its inception at the beginning of the twentieth century to the present. One need only take a look at the White House Conference of 1930 and 1950 to realize the tremendous changes that have taken place in services offered to children from the preschool nursery to the high school in these twenty years. Yet the problem is not solved. There are goals which call for accomplishment and indicate that increased special services are desirable for an even greater number of young adolescents. However, it is only a few short years in the history of man since he has not expressed primitive fears, ridicule, neglect, or sentimentality toward the physically handicapped, and only in the past fifty years has he begun to offer special educational procedures to young children who have special health problems.

There are also young people of secondary school age who are not in perfect health, who cannot stand the strenuous play and recreational activities of the average adolescent, and who are in need of additional physical care. The factors of safety and of physical limitation are ever-present. They cannot fully participate in the social, educational and pre-vocational aspects of the average high school's intramural activities. Often accidents take their toll of these youngsters; acute illness sometimes strikes. There are those who have a history of rheumatic fever or other cardiac disability or arrested tuberculosis. Others have diabetes; still others suffer from lowered vitality caused by faulty diet, chronically poor health practices, allergies, asthma, epilepsy, mild orthopedic deviations, post-operative weakness, cosmetic disturbances, endocrine imbalance, and/or multiple handicaps. They may be found in hospitals, convalescent homes, sanatoria, residential schools, at home, and in private and public secondary schools.

All special education facilities in day schools, geared to the particular needs of these young people, should be housed in a single multi-grade level homeroom or center in each high school serving a community. One of the ways to meet this problem is in planning for a classroom, well-equipped and attractive, on the ground or street level of the school building; and its heating, lighting, ventilating and colors of the walls should follow the best known standards. This room should operate at its optimum so that the best high school instruction program can take place there, both in groups and on an individual basis. Modifications of subject-matter instruction can be made by the homeroom teacher to give the student the greatest benefit in materials and devices so that learning can be achieved with a minimum of physical exertion and strain. The subjects offered should relate directly to whether the student shows ability and interest in academic, commercial or vocational training.

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The need for a special program with modified instruction, possible extra rest hours in a quiet room on a cot, nourishment during morning or afternoon sessions, and clinic or treatment center time during school hours, is sufficient cause for receiving extra funds from state legislatures. Hot school lunches, corrective gymnasiums, playground areas, and auditorium facilities should be made available to all students with special health problems, and school program planning should include such services to them. If possible, both normal and exceptional students should share them.

The modification of the physical instruction program, with medical, surgical or dental aid, is a requirement of these students. Where possible, state rehabilitation officers can offer extra assistance to those who are in need of prosthetic devices, eye glasses, or cosmetic correction. If need be, transportation by special car, station wagon or school bus should be arranged to facilitate easy access to the high school building and to the various treatment agencies. The use of the high school elevators is a common practice. Special seating arrangements can be made in the regular classrooms for those students who require them.

Special visual aids, such as enlarged type for those students visually handicapped, special auditory aids for those with deficient hearing, and special equipment for those requiring speech assistance would be necessities in the homeroom of the high school building.

Teachers with training in special education practices in the graduate schools of colleges are most desirable, both for the educational as well as for the psychological factors involved. It is wise to assume that the child with special health problems will remain in the special class, hospital, convalescent home or on home instruction only so long as his physical condition warrants such services and that these be carried out upon the recommendation of the physician. It would be well, then, for him to remain with the same teacher during the entire period of special care. The regular subject teachers should have some knowledge of his limitations as well as of his special abilities, and realize that flexibility of programming is a necessity, since the time element is often of the essence, as in clinic attendance, physiotherapy, or dental care.

Where the student is at home, either for a short period or longer duration, the utilization of the home-school telephone and special televized programs of instruction are of great value for him in the continuation of his learning and sense of belonging to the high school serving him. The home instruction teacher will here be the bond between him, his peers and his high school teachers. In hospitals and convalescent homes, especially trained teachers work with these young people and help maintain the educational goals and achievement so that upon return to school they will have accomplished as much up to the level of their abilities as is feasible for them.

In the selection of students for the special services, great care must be taken. School medical authorities cooperate with private physicians and with hospital clinics in the decision as to whether certain children would benefit from such extra services. The health and welfare agencies, both private and public, contribute greatly to this effort and should be called upon for their valuable contributions to these young people.

Diagnosis must be made by the physician, and often by the dentist. Insofar as eligibility and placement are concerned, the superintendent of schools is the final authority in charge. Both health and educational recommendations are carried out locally. The cooperating agencies, including the social service aspects and the vocational rehabilitation divisions of the various states, serve these children through continued care, if required, and through follow-up for at least one year upon leaving high school.

The educational goals are identified with those for children who are in regular classes, with the major stress on good health practices, not only physical health but also mental and emotional security. Health education and physical well-being play a large part in the goals for these children. Socially, academically, and vocationally, the goals are the same as for other children, with the added requirement that the special teacher be well informed as to the particular limitations in regard to each individual case.

The guidance counselor attached to the school is also in need of a thorough knowledge of the skills and training concerning the special needs, interests and abilities, and physical and mental limitations of each child with special health problems. He should be trained in the psychology of the physically handicapped as well as in the physical aspects of these children. He should meet the children on entrance to high school and discuss and direct them in terms of their physical and mental equipment. He should visit the home, hospital or convalescent home and follow them and their progress there as well as in the day school. It is advisable for him to meet with the parents and offer realistic counsel on jobs, and the cost of training in relation to the socio-economic status of the family. He should be able to appraise records and analyze opportunities for the physically limited through federal, state and community services, publications, tests, interpretations of results, placement bureaus and study chances for long-time employment at the outset. If the young graduate is successful, the counselor can then feel there is a likelihood for good personal and social adjustment. He can invite representatves of various industries to discuss the possibilities of employment of these students. Where this is not possible, he should assist in placing the student in a sheltered workshop situation. Publicity in industrial and commercial establishments is a very important phase of his work so that these young people can be made known and proven to be capable workers. Cooperative training programs can be utilized for those students who show ability and whose health status warrants such programs.

It is for the teacher and his counselor to make the parents aware that the school day must be adapted to the needs of their child. Aside from attendance of possibly less than a full day, individual attention, adapted games and physical education, rest periods, avoidance of stair-climbing, and others, there is the question of parent care at home. He must be counseled to fully understand the home care necessary, such as adequate and proper diet, continued medical supervision, and correction of any minor health defect which might infringe upon the achievement of the optimum in health and the conservation of all capabilities.

It must be noted that the curriculum is the same as that of normal children except that additional practices are offered in the health area and the much more individual teaching and smaller working groups are advisable so that each person will accomplish up to his maximum level of achievement. If possible, a double set of books should be made available to these students so that one may be kept at home for study and the other used in school. The homeroom teacher will closely follow the subject-teacher's recommendations concerning the achievement level of her students, and, where necessary, institute a remedial program or special study time with her assistance. Of course, the subject-teacher will meet with the special teacher from time to time to discuss the student's progress.

The constant close cooperation of community agencies is enlisted in aiding in the development of leadership among these students when noted by the homeroom teacher, the subject-teachers and the guidance counselor. Part-time employment should be offered to those whose health status is good and who require financial assistance. On-the-job training is a fine method in aiding them to become self-sustaining members of the community. If necessary, transportation to and from the job should be provided by interested community agencies.

All who work with these children, in whatever capacity, must attempt to guide them toward total security. The conference method, or what is commonly known as the 'team' approach, is often used. Training in leisure-time pursuits, such as hobbies, clubs, friendship circles and the like should stem from their cooperative efforts.

Some children are in need of even further care. Where one or more of the therapies are indicated, services in those aspects should be instituted as soon as a diagnosis has been made. Psychotherapy, for example, is called for only when the individual has emotional problems that cannot be resolved except by a psychologist or psychiatrist specially trained in this phase of psychological service. Speech therapy may only be offered by an accredited speech pathologist or speech teacher usually assigned to the high school for all those students who are in need of such work. Physical and occupational therapy are most often the concern of the hospital, convalescent home, clinic, or treatment center. Drug or medical therapy may only be administered by a physician's prescription.

However, even with all of these special services, problems other than these do arise among adolescents. Family attitudes play a vital role in the view that these young people take of themselves. What of their peer groups? How do they see themselves in relation to other young people? What feelings do they develop concerning their sex role? What shall be their realistic vocational choice? What degree of training for employment shall they receive while in a convalescent home? What manner of training shall they receive while in high school? All these and others not so prevalent enter into the minds of these adolescents and of all who play a part in their lives. Even broader needs and wider goals are exposed, so that the education of children with special health problems becomes a major issue in the development of methods, materials and devices needed to surmount not only their physical limitations but also possible resultant handicaps arising not from physical causes but from other problems contingent upon their ways of growing up.

Their goal, as with all other adolescents, leads them toward assuming a self-sustaining and self-respecting life as they enter upon maturity, into adulthood and citizenship.

SECTION V

CHAPTER II

THE MULTIPLE HANDICAPPED

THE CHILD WITH MULTIPLE HANDICAPS.

BY ELENA D. GALL

THE CHILD WITH MULTIPLE HANDICAPS

ELENA D. GALL

A multiply handicapped child may be severely or mildly disabled by two or more physical disabilities. He may be both mentally and physically limited, with an emotional maladjustment very frequently occurring as a concomitant handicap. An individual with overlapping limitations may be found in a regular classroom, in a special class, in a special residential or day school, in a hospital, in an institution, in a sheltered workshop, or at home. He may be an infant, a preschool child, an elementary school pupil, or a secondary school or college students.

For example, a child with a IA cardiopathic classification, and a not too easily discernible curvature of the spine, may also suffer occasional asthmatic attacks. Such a child is usually found in a regular classroom in any school system; because of the marginal quality of the handicaps he goes, for the most part, unnoticed by the special education team. Another youngster attending high school is receiving instruction at home for a period of five hours each week because of severe involvement due to cerebral palsy and uncontrolled epilepsy; this student, of approximated normal intelligence, has accompanying handicaps in vision, hearing, and speech. A young adult, because of severe mental retardation, has never attended school; his mother wheels him around in an oversized baby carriage; he has faulty speech, poor muscular coordination, and is emotionally dependent. A deaf-blind child in a residential school lives thousands of miles from her home where she is not wanted; she is below par in intelligence and has lowered vitality. An aphasic child is in a day school for the deaf; he has diabetes and is socially maladjusted. An intellectually gifted child has a brain tumor and does not get along with his peers.

These are typical examples of individuals who have come to the attention of public and private agencies, school administrators, educators and physicians from the beginning of school programs. For all of these types of multiply handicapped, and a variety of others, there is still no tailor-made program of training that ensures the treatment and cure of the minor handicaps and deals substantially with the recovery of the more severe ones.

Efforts have been made in the past fifty years in this country to bring about education, rehabilitation, or custodial care in all areas dealing with emotional, mental, and physical deviations. This has been accomplished by emphasis on:

1. Early discovery of deformities in all children
2. Placing patients under immediate physical, surgical, and educational treatment
3. Engaging in a relentless and vigilant team approach involving the physician, teacher, psychologist, parent, and nurse
4. Following up at regular intervals with a testing and re-evaluation program.

According to a recent study,[1] there are 496,219 exceptional children receiving special education in public day schools in the United States. This number includes only those classified as mentally retarded, speech defective, crippled, deaf, hard of hearing, blind, partially seeing, those with special health problems, and the mentally gifted. The homebound and hospitalized have not been included in this number, which is considered to be only 18 per cent of those in need of special programs. It has been estimated that only one out of five people in need of such services are receiving them. The percentage is even lower in rural areas. Even in urban centers this number of reported children is only 40 per cent of all those who need special education in the categories mentioned.

The multiply handicapped, long labeled as non-educable particularly in view of severe disability, are rarely admitted to the special class in the regular school. Yet interestingly enough, if one considers the broad definition of overlapping handicaps, one finds an amazing number of multiply handicapped children even in special classes in regular schools. In one county in Iowa, the teachers in public school classrooms related 1.38 handicaps per child of those who, though handicapped,[2] were able to attend school. On the other hand, in surveying the enrollment at the Iowa Hospital School for Severely Handicapped Crippled Children, it became apparent that the 23 children in attendance were afflicted with eight different types of disabilities; on the average, there were 3.5 handicap per child.[3]

In October, 1952, the number of children with multiple handicaps in schools and classes for the deaf in the United States and Canada totaled 633.[4] The break-up was as follows:

	Aphasics	Deaf Blind	Cerebral Palsied	Orthopedic
Public residential schools	15	25	168	54
Public day schools and classes	35	3	123	31
Denominational and private schools	75	22	39	10
Schools and classes in Canada	7	6	16	4
TOTAL	132	56	346	99

These figures show that when one considers a group with a major handicap, such as the deaf, one can expect associated handicaps, both physical and sensory, in a percentage of cases.

Actually, the number of children with multiple handicaps is very large if we consider the fact that they may be handicapped by two or more physical

Table I. Concomitant or Associated Handicaps

Handicap	Orthopedic	Mentally Retarded	Cerebral Palsy	Emotionally Disturbed	Speech Defective	Blind	Epileptic	Deaf	Hard of Hearing	Low Vision	Low I.Q.	Brain Injured	Lowered Vitality
Orthopedic	—	O	—	O	O	R	R	R	R	R	R	R	O
Mentally Retarded	O	—	R	O	O	R	S	S	R	S	—	S	O
Cerebral Palsied	O	S	—	U	U	O	O	R	O	O	R	R	O
Emotionally Disturbed	O	O	O	—	U	O	O	O	O	O	U	U	O
Speech Defective	O	O	U	U	—	R	R	U	U	R	O	O	O
Blind	R	O	R	O	R	—	R	S	—	—	—	—	—
Epileptic	R	O	O	U	R	R	—	S	R	R	R	O	O
Deaf	R	O	O	O	U	R	S	—	—	O	S	S	R
Hard of Hearing	R	O	O	O	U	R	R	—	—	O	O	S	O
Low Vision	R	O	O	O	O	—	O	O	O	—	S	S	O
Low I.Q.	O	—	O	U	U	O	O	O	O	O	—	O	U
Brain Injured	O	O	O	U	U	O	O	O	O	O	O	—	U
Lowered Vitality	O	O	O	U	O	R	R	R	R	O	O	O	—

O — Occasionally R — Rarely S — Seldom U — Usually deviations. One may be marked, one may be minor; one or more may be allied to basic difficulties, and one or more may result from secondary deviations. Such handicaps may be permanent or temporary, incurable or curable. Multiple handicaps may stem from birth injuries, prenatal influences, accidents, infections, neglect of major disabilities, maltreatment, maldiagnosis, heredity, or emotional factors.

For the most part, children are being placed under special instruction according to their major handicap. Concomitant handicaps are very often neglected, if not entirely overlooked, in school, particularly if the teacher in charge is not well trained, if the plant is not well equipped, or if the school administration is not well oriented to the variety of disabilities and the need for specially designed programs. The accompanying chart, although oversimplified in its design, shows the combinations of handicaps that may be found. Although there are no figures available to substantiate this very general distribution, the author is taking the liberty of basing it on many years of teaching and observing the handicapped of all age groups.

As research in medicine and psychology advances, more hidden disabilities and their treatment are revealed. For example, in a recent article[5] the author discussed strabismus and cerebral palsy. While strabismus is not synonymous with blindness it does accompany it. Work done on this subject by a Chicago physician, Dr. G. P. Guibor, was summed up thus:

> Crossed eyes are present in more than half of the persons who suffer from cerebral palsy. The theory is that crossed eyes might result from the same causes as cerebral palsy - injury to or lack of development of the brain centers governing motor coordination. Proper glasses and other non-surgical procedures have, in many cases, improved general coordination in such persons.

The problem of multiple handicaps was reviewed briefly at the Louisville meeting[6] of the American Association of Instructors for the Blind. Children having handicaps other than blindness were discussed as having an urgent need for special programs and for teachers with patience, tact, and understanding. These blind children were also suffering from cerebral palsy, speech difficulties, brain tumors, epilepsy, or deafness.

A pioneer report[7] on the cerebral palsied blind child carried the results of a questionnaire distributed to 81 institutions for the blind and 68 institutions for the crippled. The following data regarding programs and admission policies for the multiply handicapped were elicited. During the past ten years, schools for the blind had received 125 applications for cerebral palsied blind children. They had admitted 75 and refused about 30. Institutions for the cerebral palsied and orthopedically handicapped reported approximately 75 applications, with 50 admissions and 25 denials. Officials reporting for the schools for the blind pointed out that their figures should not be interpreted too strictly because admissions statistics were generally maintained on the basis of eye conditions rather than concurrent disabilities. The figures given by schools for the blind, therefore, are probably underestimated.

"Caution must be exerted in using any of these figures to determine the number of blind cerebral palsied children in our society during the years 1942-1952. First of all, from 25 to 30 per cent of the residential institutions did not participate in our survey. Secondly, many of those participating were not in existence over the entire ten-year period; this is especially true of the cerebral palsy institutions. As already noted, no accurate statistics have been kept by the institutions, and it is also possible that some of the applications reported by one official were duplicated in the report of another. Furthermore, of course, fear of stigma and ignorance of the extent to which even the most severe physical handicaps can be overcome have undoubtedly prevented and are still preventing many blind cerebral palsied individuals from making application at any institution whatever. Finally, the survey did not generally include clinics set up to serve out-patients only, since most of these have been but recently established and do not ordinarily admit blind children.

> The figures quoted . . . indicate . . . that a little more than half of those actually applying for admission to institutions for the blind or for the orthopedically disabled have received the benefit of any kind of service. They also indicate that of those who have been granted admission three-fifths have attended schools for the blind and two-fifths institutions for the crippled . . .[8]

There is no area in special education that challenges the teacher to the degree that the field of the multiply handicap does. It is virgin soil, and inspiring to the curious, intelligent, well-informed teacher. It brings results whenever effort is expanded in terms of materials, methods, devices, and techniques. It brings a personal satisfaction to the teacher that cannot be compared with any achievement she may have with other children. There is a personal bond, a sharing of an emotional tie which is both necessary and wholesome in revaluing the severely multiply handicapped.

And yet, children with severe multiple handicaps have been and are termed non-educables. Many cogent reasons have been submitted by cautious school administrators for refusal of admission:

1. Lack of trained teachers, therapists, physicians, parents, nurses
2. Lack of specialized equipment
3. Low mentality of applicant
4. Lack of proper pre-school training in activities of daily living
5. Danger to themselves and to others handicapped because of poor vision, physical coordination, and/or lack of hearing
6. Difficulty in getting about
7. Need of more knowledge as to etiology of disability (mentally retarded, epilepsy, scoliosis)
8. Lack of parent education and counseling
9. Lack of legislation regarding admission to school
10. Lack of funds (for buildings, institutes, shelters, clinics, hospitals, and other specialized centers.)
11. Lack of community education, particularly employer education.

Examples of multiply handicapped children and their problems, which continue to challenge agencies and school people, are as follows:

I. John, a 12-year-old, is a non-ambulatory cerebral palsied with marked athetosis. He is mentally retarded, with an I.Q. of approximately 70. He has a visual handicap and slight speech impairment. He was recently admitted to a center for cerebral palsied children in his school district, where he receives individual attention in the classroom which houses ten other cerebral palsied children. He goes to a speech clinic daily. He is showing marked improvement in attempting to walk with braces and crutches since he is receiving physical therapy three times a week. John is also learning to use his hands through the aid of occupational therapy. His teacher reports that with increased learning opportunities John may prove to show a higher score in his intelligence test. Much of his lack of knowledge is due to a long period of isolation as a homebound child, as well as from retarded physical development which prevented him from experiencing the usual social and educational activities of other boys his age.

II. Susan is an 8-year-old child with congenital heart disease. She is homebound and is permitted limited physical activity. An only child, she lives in a very comfortable home with her widowed mother. Susan also suffers from asthmatic attacks. For this reason her mother, who is very solicitious about her well-being, does not permit her to play with other children or have other children visit her for fear of upper respiratory infection caused by contact. Although Susan's intelligence is above average, she shows little achievement in her work. She is disinterested in formal schooling and wishes to play most of the time. Her mother is anxious about her school progress and attempts to assist her, only to find that the asthma attacks become more frequent. Symptoms of withdrawal and hostility are reported by the solicitious parent.

III. Jane is a 14-year-old high school freshman who has a slight curvature of the spine, poor dentition, reading difficulty, lowered vitality, and low vision. She has no major handicap; however, she is in need of physical and educational treatment. Her teacher, with the help of the medical personnel of the school, and the school social service, is able to place Jane under treatment which will bring about optimum physical health. A referral to the orthopedic clinic will give diagnosis and treatment. The district dental clinic will look after her oral needs. The nurse-teacher-parent-doctor team will meet regularly to discuss her general health needs to give her added zest. The vision can be corrected by referral to an eye clinic or private opthalmologist for diagnosis and treatment. The reading clinic of the university in her town will offer special instruction on referral. By having these minor multiple handicaps looked after, Jane can be helped to become a happier and more wholesome adolescent. This can be accomplished with the help of Jane's parents, who are interested, enlightened, and cooperative.

No matter what the extent of the deviation may be, special education personnel are responsible for early diagnosis and pre-school education to avoid the hazards and neglect of multiple handicaps and thus prevent associated injuries. Training, prevention of secondary deformities, rehabilitation, and parent education are functions of the special school as well. However, educators need considerable support in handling the difficult matter of education and treatment of the multiply handicapped. Adequate treatment centers, specially trained personnel, appropriate tests, devices, and techniques to be used in instruction are still lacking. Legislation to provide for the expensive program for the care of all multiply handicapped children is still needed in many states where treatment centers and schooling facilities are needed. Research is still in its infancy in fields of diagnosis, treatment, care, and education of children who are severely handicapped by more than one major disability. Oddly enough, a widespread program for the multiply handicapped is being carried on in private and/or public centers interested in the cerebral palsied child.

Among the most difficult problems which face the teacher in charge of multiply handicapped children is accurate clinical evaluation to determine the extent of ability and disability. An aphasic child, a deaf-blind child, a cerebral palsied child without speech, a mentally retarded cardiopathic child, an emotionally disturbed brain-injured child require months of observation, instruction, record keeping, and consultation before adequate educational programs can be devised. Teachers with imagination, patience, and objectivity are devoted to these children and spend their lives to apply what methods have already been devised for the individual needs of each child.

Both methods and devices are further needed to reach the child who is at least twice removed from the scene of normalcy. The multiply handicapped, because of disfigurement, poor speech, disappointment of parents, lack of achievement, and attitude of other children toward these obvious handicaps, need the support and guidance of specially trained and experienced teachers to learn to accept himself daily. Although the feeling of inferiority exists in all of us, it is apt to be much more acute in children who are faced continuously with experiences of frustrations and the resultant feelings of inadequacy. Parent education is of utmost importance in a program of education designed for the multiply handicapped.

The child with overlapping handicaps is also limited emotionally. This disturbance may be due to an abnormal parent-child relationship, the severity of the disability, the reaction of society to the handicap, or the onset of the illness, limitation, or disability. The degree of security a child experiences in infancy, and as he grows older, determines his eventual emotional maturity. Children who are loved and wanted by their parents are helped to grow emotionally. Although the relationship between parents and physically handicapped children is frequently just as healthy as that with the physically normal, parents sometimes do not respond naturally to having a chronically ill or handicapped child. Deep feelings of guilt on part of the mother are almost always present in connection with a congenitally deformed child or even with a child who is injured in an accident. Parents act out such feelings either in disguised punishment through restrictions and rigid scheduling, or give in completely to the child's every whim. Some parents are ashamed of their defective children and tend to hide them from their friends and neighbors. Other parents refuse to recognize the permanency of a severe handicap and its implications and, therefore, travel from one physician to another trying to find a cure. Often they interrupt the treatment and subscribe to quacks.

Such parents are in need of help and can be assisted by being offered more information regarding diseases and helped to become more emotionally mature and stable. In the meantime, disturbances caused by a poor attitude of a parent toward a handicapped child may establish a secondary physical handicap such as colitis, asthma, or an allergy. Separation for the parent before the age of six for treatment or hospitalization may seriously interfere with the child's ability to form satisfactory emotional relationships with people. In the case of the brain-injured child we find that there are primary and secondary effects of lesions. For instance, damage to the brain may result in the impairment of function such as the proper use of intelligence, judgment, habits, emotional responsiveness, sleep, ability to read, and others. Among the secondary effects are the psychological reactions; these may be fear, resentment, discouragements. "Sensory deprivations, particularly those of hearing and sight, may result in constriction of behavior personality, sometimes even resembling mental deficiency."[9]

Unconscious problems exist whenever the individual is faced with illness, accidents, operations, or shortcomings in appearance. This is a normal reaction and must be kept in mind as a frame of reference whenever we attempt to understand emotional disturbances in the handicapped. The handicapped child feels anxiety and frustration whenever illness or disability threatens his security. The disabled individual tends to interpret his malfunctioning as a result of rejection or lack of love from his parents, or neglect from society. On such distortion of logic he often makes claims and demands on those around him. Some children who are not well adjusted to their handicap may express withdrawal, hostility, and aggressiveness. Other children are proud and rather rebellious and reject pity and excessive demonstrations of kindness. Still other children remain despondent and have excessive need for signs of affection, care, and attention.

Emotional reactions of handicapped children often become more prominent during adolescence. In girls, for instance, disability and restrictions may be adopted as desirable gratifications, and getting well may not be achieved. As they face surgery or medical treatment, patients with anxieties and guilt feelings need constant reassurance from parents, teachers, and doctors.

Although all people have problems centering around growing independence, overcoming feelings of inadequacy, and establishing themselves as accepted individuals, these problems may be aggravated in multiply handicapped individuals. Dependence which has been fostered by well-meaning parents from the very beginning of the onset of the disabilities has to be gradually transformed into at least partial independence through constant treatment, and opportunities for play, for schooling, and for creative activities. Restrictions should be made clear to children who are not easily oriented to the environment of the normal child. Parents who are permitted to work closely with 'the team', or as a part of the group of experts, will gain insight and adopt a more realistic attitude toward setting of goals and daily achievement of the multiply handicapped.

A child with physical or mental handicaps may have increased dependency imposed up him by overprotection. Such marked feelings result from congenital or early childhood diseases causing retardation in social and emotional development. For example, the congenitally blind child receives help from his parents to such an extent that he does not develop the skills needed in a normal course of development. The child handicapped by cerebral palsy is late in using his body muscles, usually because he is delayed by spasticity; and because he does not have body coordination, he is restricted from having normal experiences. A disorder in communication occurring early in life increases the feeling of dependency. Academic retardation in the child with cerebral palsy can be attributed to experimental limitations.

As parents become better prepared to assume the difficult task of substitute teachers and full-time attendants for their children, they help to devise materials and to plan programs for these children. A group of parents of severely retarded children in Detroit sought the assistance of the park department of that city to designate a picnic area for a group of children who were so handicapped that they could not fit into the regular school program or even in a community recreation center program. With the help of a voluntary agency, these children were transported daily to the park center and helped by a trained leader to socialize and to plan simple experiences together. One child, ten years old, who had never spoken at home was stimulated to report experiences to his parents, first in single words and later in sentences. Such a statement as "I have to bring a quarter tomorrow" was not difficult, apparently, for the child who was sufficiently motivated in sharing an experience with his peers. Wherever parents congregate to look after the needs of their children, there is the added advantage of the opportunity to talk about their worries; by sharing experiences, they unburden the cumulative tensions of weeks and months of loneliness with their problems.

Given a chance, parents can, with the help of expert leaders, make real contributions to the training team experts. Speaking at the 1954 annual convention of the Association for the Help of Retarded Children, Dr. Martha M. Eliot, chief of the Children's Bureau, U. S. Department of Health, Education, and Welfare, gave significant recognition to the role of parents in this area when she said:

> When officials of public agencies ask what kind of services should be provided for retarded children, my advice to them is 'Ask the parents'. Parents who have lived and worked with retarded children are often the best qualified to say what help they need, though professional persons will have to provide the hows.

In one field of the multiply handicapped there has been a persistent effort to establish programs, devices, techniques, and to offer guidance. More than 115 years ago, Dr. Samuel Gridley Howe made the first attempt to educate the deaf-blind in the United States. He had visited European schools where experiments in this field were being carried on, and had achieved eminent success in the education of Laura Bridgman. Another famous American story started about 50 years later when Mrs. Anne Sullivan Macy was engaged to teach a little deaf-blind girl, Helen Keller. In the field of the deaf-blind, as in other areas of the multiply handicapped, the numbers are comparatively few; still, despite rich educational resources, we have failed to give all deaf-blind children the benefit of at least an elementary school education. It is rare to find teachers who, like Dr. Howe and Mrs. Macy, feel the dedication to one or several individuals which requires a life-long effort to establish communication with the outside world of intelligence and personality so completely confined with the deaf-blind. Public and professional workers still feel there is an impossibility to the task. Also, funds are lacking for such an expensive venture involving research, devices, and, at least, several trained people per pupil, — teacher, custodian, companion, therapist.

A deaf-blind is so classified if he has a combination of two handicaps: totally deaf and blind, totally deaf with poor vision, hard of hearing and totally blind, or hard of hearing with poor vision. Programs for the deaf-blind (there were 42 deaf-blind children reported in 1953) are currently being administered at the following schools: New York Institute for the Education of the Blind, New York, N. Y.; Perkins Institution for the Blind, Watertown, Mass.; Michigan School for the Blind; Iowa School for the Deaf; California School for the Blind; Alabama School for the Blind.

Although labels and classifications give the teacher some indication as to the nature and extent of the handicaps, it is important to keep in mind the fact that no two multiply handicapped children, or adults, are exactly alike. Factors other than the disabilities must be taken into consideration if suitable curricula are to be constructed. The intelligence drive, and personality of the individual are important assets to explore and develop by educators. Among the major goals of the teacher of the deaf-blind are the provision of many activities, human contacts, and the restoration of contacts and the re-creation of the desire for living. The teacher must take into consideration not only innate individual differences but differences brought about by the variety of causes, degree of disabilities, and onset of disease or accident which caused the disability.

The teaching job of the multiply handicapped such as the deaf-blind is a slow building process of many concepts of daily life and the world around the individual. These mental pictures must be introduced separately, repeatedly, and correctly over a long period of time. Finally, it forms in the individual's mind a mosaic describing the environment which he cannot see or hear. Special tried methods are utilized by the present-day instructor who continues to create new devices and techniques. Among the methods in use are:

1. The manual method may be approached either by raised letters of the alphabet combined into words and traced by finger, or by certain finger positions designating particular letters of the alphabet which are so combined into words and spelled in the hand. In both of these approaches the pupil is able to feel the formulation of the letters.

2. The oral method is the one most predominantly used. In this method the deaf-blind are taught to speak and understand speech vibrations (Tadoma Method). The child places his thumb on the teacher's lips and his fingers on the teacher's cheek. The pupil is given to feel with one hand a familiar object like a pencil or an apple. The other hand is on the teacher's face while she says the name of the object over and over again. With proper motivation the pupil learns to make the correct association between the name of the object and the vibration of the teacher's lips and cheek. Progress is very slow at first. As the child becomes more familiar with this method he learns to take other instructions such as words or phrases giving directions — walk, sit, run, dance.

3. Speech training is encouraged as part of the total program of education and is almost always difficult because it not only requires the knowledge and technique of teaching language but also the creativeness and extreme patience of the teacher to apply known methods to each individual child.

4. Many methods of communications are recommended by those who have worked with the deaf-blind. Speech by vibration, for instance, is not only that read by placing fingers on the lips and cheek but also by having the pupil feel the vibration on the top of the head, on another person's hand placed on top of the speaker's head, on the back of the head, at the end of a wooden tube, or on a window while the speaker talks at the other side of the pane. Braille, reading of print on hands, and the use of the manual alphabet are all important to teach the deaf-blind to insure maximum communication.

Among other problems in adequate educational programming is the need for parent counseling and parent adjustment. Children who are deaf-blind must be taught early and in schools best equipped to do the job. They require very special and personal teacher contact. They have to be taught early to concentrate in order to learn what they cannot hear and see. Agencies for the deaf-blind have separately undertaken the rehabilitation problems of the largest number of deaf-blind, namely, adults forty to sixty and over. But, for the most part, workers so handicapped are presently being referred to agencies for the blind.

At the Industrial Home for the Blind, Brooklyn, N. Y., a program which revolves around approximately 64 deaf-blind persons has revealed that the deaf-blind there can learn to do anything that the blind can do, including many manual operations. They are able to earn what the blind do and sometimes more; some salaries range between $25 to $55 a week. In addition, selective placement outside the Home have been made with the help of other agencies.[10]

While there are no agencies, as such, to help only the multiply handicapped, these individuals very often utilize existing agencies which are set up to serve those having specific handicaps. Attempts have been made, however, by professional groups to discuss the problems of the multiply handicapped. An example of the cooperative planning is illustrated by the National Study Committee on Education of Deaf-Blind Children, which was created in 1953 at a conference held at the Perkins Institution, Watertown, Mass. The various problems[11] for research which have been organized by this group are:

1. The effect of deaf-blindness upon the personality structure
2. The adaptation of psychological tests and measurements to make them applicable for use with the deaf-blind (or the development of new tests?)
3. Counseling techniques, psychotherapy, and mental hygiene for the deaf-blind
4. The social psychology of deaf-blindness
5. Educational and instructional methods with the deaf-blind
6. Sensory aids and travel orientation

There have been, in addition, reports of definite cooperative activities in the field of multiply handicapped in various parts of the country. In Missouri, Kansas, Florida, and New Jersey specialists in cerebral palsy are working with agencies of the blind. Schools for the blind have reported cooperative programs with agencies for crippled children in Massachusetts, Alabama, and South Carolina. In Kansas City, the cerebral palsy center is experimenting in the field of multiple handicaps, including that of cerebral palsy and blindness, and plans are under way to obtain grants for extending this research. In various states and Canada, many cooperative efforts are being attempted to bring greater services to the multiply handicapped. A report from Oregon referred to multiple handicaps in connection with retrolental fibroplasia among kindergarten and first-grade children. "Not only does this group have less useful vision than was the case in former years but there is a much higher percentage of non-stimulated children and children with multiple handicaps."[12] Recent suggestions made in England[13] for the training of epileptics and patients with cerebral palsy might be pondered where blind Americans with overlapping handicaps are concerned. The Ministry of Health Advisory Council for the Welfare of Handicapped Persons had received reports from their committee on the development of welfare services for handicapped persons. Recommendations included adequate welfare services for the fully developed case, the assurance of treatment following diagnosis, careful testing of the intelligence, training for an industrial occupation, and admission to residential units. Encouraging results obtained at Queen Mary's Hospital were cited; there "intelligent palsied children" had been trained in normal movement from a very early age.

Another example of a splendid cooperative effort on part of public and private agencies is the sponsoring of research in a specialized training program for mentally retarded young adults. In 1955 The Association for the Help of Retarded Children, Inc., requested and was granted $48,700 (slightly more than half the projected cost) by the Office of Vocational Rehabilitation of the U. S. Department of Health, Education, and Welfare for research in "Specialized Rehabilitation Training for Mentally Retarded Young Adults". The grant was made possible by the amendment to the National Vocational Rehabilitation Act passed by Congress in 1954. The major aim of the project is the development of the personal, social, and vocational competency of mentally retarded adults for employment in industry and sheltered workshops. It will also "explore and develop more effective methods for the reclamation of the mentally retarded heretofore deemed unrehabilitable."[14]

The task of educating the multiply handicapped is still a very lonely one. Most of the effort currently expended is by concerned parents, sympathetic physicians, and zealous teachers. The public does not yet know that "the only uneducable child is the child for whom no education is provided."[15] Employers are still timid about employing the severely handicapped simply because they have not been made aware of the work potential of such individuals.

Laboratories are still working on possible cures for crippling diseases through drugs and surgery. Methods of diagnosis and treatment of the child with psychosomatic affections are still in the experimental stages. The investigation[16] of the established principle that brain damage in its early stages affects the individual's personality in relation to the social ramifications due to the culture at large is still to be interpreted to the professional team.

The field of intelligence testing of the multiply handicapped is still in its infancy. "There is no reason why nervous injuries should not produce mental defects. Who is going to decide where the cutting point is between usefulness of training and non-usefulness of training . . ."[17] There is an urgent need for sufficient and more complete records to be kept systematically by teachers, parents, physicians, nurses, and therapists to guide the team more directly toward a maximum rehabilitation program. Among the questions that need to be fully answered before programs of education and treatment are set up are:

1. When did the injury or injuries occur?
2. How extensive is each handicap?
3. Which sections, what functioning abilities have been cut off?

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1. When did the injury or injuries occur?
2. How extensive is each handicap?
3. Which sections, what functioning abilities have been cut off?

4. What kind of a child has suffered these injuries?

Principles of education and curricula need to be individually designed *to include vital* areas:

1. Communication, including auditory-linguistic skills and other means of expression
2. Self care by cooperative and consistent effort between school, clinic, and home
3. Concept formulation by a planned program of experiences
4. Developing readiness for problem-solving ability for more structured learning and for the use of educational materials
5. Training for lesiure-time activities, for part- or full-time jobs through motor development, and the discovery of special interests and abilities

Wherever multiply handicapped children are being taught, and will be trained in the future, the teacher will be in the most advantageous position to assist in the development and maximum education of severely handicapped children. In order to assume such responsibility, the teacher has to be well trained in several fields of exceptionality and have had successful experience with normal children. In addition, she needs to have:

1. A sense of humor to overcome the many frustrations.
2. A feeling of friendliness to be able to work well with others under any circumstance.
3. Sensitivity to know the innermost needs of those who cannot express themselves.
4. Courage to experiment with new methods.
5. Strength to hold on to her convictions in face of controversy.
6. Energy to work endlessly for and with her few charges.
7. Patience to wait years for minimum results.
8. Feeling for art to see beauty where perhaps others have not yet seen it.
9. Hope to believe that others in allied fields may contribute answers to what seem to be unsolvable puzzles.
10. Charity to know the inspiration that comes from working for others.
11. Love to attempt difficult tasks.
12. Faith to realize that there is a plan and purpose in teaching even the least of them.

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SECTION V

CHAPTER III

HANSEN'S DISEASE (LEPROSY)

HANSEN'S DISEASE, BY HAROLD H. HENDERSON

CARVILLE, BY N. CARL ELDER

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

HANSEN'S DISEASE

HAROLD H. HENDERSON

Tom and Ada Jones were cosily settled in their new apartment. They were just married and were having the greatest joy in setting up housekeeping. Their joy was unusually deep and meaningful because of the years of desperate anxiety through which they had come. Tom and Ada were recently discharged as symptom-free from Carville (U. S. Public Health Service Hospital), where Tom for 12 years and Ada for 8 years had battled against Hansen's Disease. While in the hospital, Tom had acquired training that made it possible for him to secure a satisfactory job, and they were looking forward to a happy normal life. They were sitting at breakfast when there came a rap at the door. Without waiting the landlady rushed in, closed the door behind her and in a loud, excited stage whisper said: "You must get out! You must get out at once! Why didn't you tell me you were from Carville? If people should learn that I had let a couple of lepers in here, I would never be able to rent another apartment. Get out! Get out today!" So their dream was shattered. Sadly Tom phoned his boss and took the day off. While Ada packed their things, Tom went to look for another apartment. Later in the day he pulled up in front of the house with a rented trailer and they took their things and left. They set up housekeeping again in another part of town and Tom went back to his work. But now their joy is mingled with fear, — fear that again folks will discover that they are from Carville.

Why should these young people be dogged by this terrible hysteria? They have won their battle with the disease. Why should they not have their little place in society?

This hysteria that dogs their footsteps has roots that go back even into ancient history.

History and Definition

Leprosy is as old as history. A disease resembling it is mentioned in an early Egyptian papyrus dated about 4600 B.C. In India, writings of about 1400

B.C. refer to it under the name of 'kushta'. In Japan it was first recorded about 1250 B.C., and in China about 800 B.C.

In the Old Testament the Hebrew word 'zarath' or 'tsaraath' is translated in the English Bible as 'leprosy'. In its original sense this word means 'ceremonially unclean'. To this was added the idea of being stricken of God and so accursed. Among those to whom 'leprosy' was attributed there were cases of Hansen's Disease, but the word also was applied to sufferers from other skin diseases, such as scabies, eczema, and the like. In Biblical time those stricken with leprosy were compelled to live apart and to cry "unclean, unclean" whenever a healthy person approached.

Leprosy may have been first brought into Europe by the legions of Pompey as they returned from Egypt in the first century. It spread fairly rapidly and for fifteen hundred years brought tragic sorrow to multitudes of people throughout Europe. During the Middle Ages in France and Flanders the discovery of the disease was followed by a ceremony which differed little from the burial service. The individual's head was sprinkled with earth to signify his separation from the living. He was then supplied with a special garment and with a clapper to warn the healthy of his approach, and was forced to live outside the community.

The disease reached its height in northern and western Europe at about the end of the 13th century, after which it declined rapidly. In the 19th century Norway was the only northern European country in which Hansen's Disease was a serious problem, unless one includes Iceland where a large percentage of the population became infected. However, the disease has since declined rapidly in both of these countries, and at the present time only few cases remain. However, it is estimated that throughout the world today nearly 10,000,000 people are still suffering from this disease. It is true that perhaps 90% of the cases are in Africa and Asia but at the same time it must be remembered that practically every country in the world has at least some cases.

Hansen's Disease is a mildly contagious disease caused by a bacillus known as the myobacterium leprae. It enters the body through the skin and then finds its way to the network of nerves under the epidermis. The organism has a predilection for nerve tissue, and therefore all types of leprosy are essentially of neural origin. Whenever a peripheral nerve degenerates or is destroyed, gradual wasting of the parts supplied by that nerve ensues. The loss of the sense of feeling is a common symptom. Certain muscles of hands and feet undergo weakening and wasting, and opposing muscles contract, which lead to mutilation of the fingers and toes. There may be some degree of paralysis of the face, especially of the lower eyelids. Often the nose flattens and spreads. Unchecked, the disease may cause further deformities. Open ulcers may occur that make advanced cases pitiable to look upon.

TREATMENT AND CARE

Over the centuries only the love of Christ induced an expression of sympathy for leprosy victims. When the poor beggar cried out to Jesus, "If thou wilt, thou canst make me clean," He touched him saying, "I will, be thou clean." In the same spirit, St. Francis of Assisi brought comfort and sympathy to them. Many Christian workers have devoted their lives to the care of these victims. During the last hundred years, Christian missions have taken a leading part in providing care for leprosy patients, treating them as best they could. Aside from sympathetic care and general medical treatment, little could be done. Chaulmoogra oil was used rather generally, although it gave only some relief and was no cure at all. Strangely enough, those ill with Hansen's Disease never die from it. For this reason it is spoken of as the 'living death'. The disease enervates the victim, however, and makes him liable to other diseases.

Only very recently has there been developed what popularly might be called a 'cure' for Hansen's Disease. During the last nine years the sulphone drugs have come into use with marvelous results. When these are given in the early stages, all outward evidences of the disease soon disappears. The drugs do not work rapidly, and in more advanced cases treatment is necessary for a period of years. However, at the present time increasing numbers of cases are being discharged from hospitals and leprosaria, apparently quite free of symptoms. Leprologists are not willing to say as yet that a cure has been found because in the research laboratories they have neither been able to infect laboratory animals with the disease for experimental purposes nor have they been able to prove that the drug destroys the bacillus. It is true, however, that these sulphone drugs so check the multiplication of the bacillus in the patient that after their use for a period of time even a high-power microscope will not pick up evidence of the bacilli in the blood or in skin scraping. It is at this point that the patients can be discharged as symptom free. There are cases of relapse, but in a large percentage the patients may carry on without the fear of the return of the symptoms. Thus, for the first time in history leprosy patients have a real hope of cure. When the sulphone drugs are given in time, patients can be saved from the terrible disfigurement that heretofore was inevitable. Even for those on whom the disease has left its mark, there is *new hope*.

REHABILITATION

This *hope* comes through the application of orthopedic surgery. The discovery has been made that muscles and tendons can be transplanted, and the use of fingers and hands restored to those who have lost their use through the ravages of the disease. Since World War II the marvelous development of prosthetic aids has opened the way to provide for advanced cases of leprosy new hands and new feet where amputation has become necessary. This really has opened the door into a renewed life in society to many who had come to feel hopeless. Where facial deformities have occurred, plastic surgery can remove the disfigurements and give the person a normal appearance again. With this development of surgery and prosthetic aids there has ensued the need for vocational training that will provide means of self-support within the abilities of the restored patient.

The education of leprosy patients, both children and adults, presents only the usual problems, except for the vocational training. Many people suffering from Hansen's Disease lose the sense of touch, and must be taught to use the sense of sight in its place.

In even advanced cases of Hansen's Disease, in which the disease has been halted and the person has had the use of hands restored by orthopedic surgery, unless care is taken the restored but unfeeling hands can be dreadfully injured again through burns, bruises, or cuts. So the protection of the hands as well as their training for productive use is the object of the vocational program. Restored hands, and feet too, seem to be more tender than normal, and ex-patients can not endure the heavy abrasive results of heavy manual labor required in farming and much unskilled labor. They must be taught the work they can do successfully.

As a patient becomes symptom-free and is trained to be self-supporting through vocational training, he naturally looks forward to the day when he will step out from the place of isolation and re-enter normal life in the community. At the same time, most ex-patients dread this return step. It is the one thing that they really long for, yet they have become hypersensitive to the attitudes of people. They shrink from being hurt. So the ex-patient must be psychologically prepared to meet people and to live among them again, — to endure thoughtless and cruel remarks without flinching by having gained an understanding of people and why the remarks are made. This lesson is a very personal one and difficult to learn. It is at this point that the chaplain and Christian friends can be of most help.

In preparation for the ex-patient's re-entry into the community again, it is not the patient only who needs training; the community also must be prepared to receive the individual and make him feel that he is a part of it. To accomplish this, the age-old prejudices must be restudied. The facts about Hansen's Disease must become well known. The wonders that medical science is working on behalf of those afflicted with this disease must be appreciated. It should be known that practically the only limitation of these ex-patients is impairment of the sense of touch. The utter unlikelihood of their being carriers or infective persons should be made very plain. An attitude that would be normal toward one recovering from any major disease should be attained in regard to those who have suffered from Hansen's Disease. This is all a matter of public health education and instruction of the public that could well be carried on through TV, radio, newspaper articles, and feature articles in magazines. As a rule, informed ministers mould opinion in their communities and amongst the people of their congregations; therefore, information regarding Hansen's Disease and the resulting social and spiritual problems should be given to all theological students. And, of course, all doctors should be given fundamental information in connection with their medical training. In order to ensure right attitudes in future generations, a lesson or two could well be included in the hygiene courses in schools. It is ignorance that breeds prejudice. Full information would banish any shadows of doubt that might hinder the naturalness of life for those who have suffered much but can now be returned to the community.

Even though we are given an enlightened public, even then, we reiterate, ex-patients must be reoriented to face return to community life. Patients who have been cast aside by the disease to utter degradation, and hopelessness (in so many cases) must experience the restoration of self-respect, confidence and hope. The stay of the disease itself cannot achieve this. There must be some more vital factor. The building up of faith in God and renewed faith in fellowmen is essential. So it is that Christian Missions are taking a leading part in this field, and chaplains play a vital part in the rehabilitation of leprosy patients throughout the world, and so a vital part in leprosy control.

HANSEN'S DISEASE CONTROL

The eradication of Hansen's Disease from the face of the earth is a goal worthy of acceptance by all. It is not impossible. Even if considered impossible by some people, that merely means it will take a bit longer to reach it.

Children could be the key to Hansen's Disease control. Leprologists (Cochrane and Muir among others) all agree that Hansen's Disease would automatically disappear in 30 or 40 years if, throughout the world, uninfected children could be separated from infected parents or other relatives. Children are by far more susceptible to the disease than are adults. In fact, it is thought that infection is rather seldom acquired in adulthood. In most cases the germ enters the body of the child and may give no evidence of its presence for many years. If infection in children is discovered in time, it can be treated with most satisfactory results. Concentration on the protection of the children would contribute largely to the curbing of this scourge.

The Report of World Conference on Leprosy, Cairo, Egypt, March 1938 stated that "any scheme for the control of Hansen's Disease will depend for its success on an educated public opinion."

An enlightened public will know the facts about Hansen's Disease and will maintain a normal attitude toward those who become ill. The disease will be feared and precautions taken against infection in just the way that other diseases are feared and precautions taken, no more, no less. Patients who have been restored to health will not be stigmatized, but will resume normal activities just as would one who has had an appendectomy, for example. The dispelling of prejudice and hysteria by shedding upon them the light of incontrovertible facts is a 'must' in the eradication program. The substitution of the words 'Hansen's Disease' for the word 'leprosy' in all references to this illness would in itself effect a tremendous change in public attitude.

The development of public opinion is a long, hard job which will consume much in the way of manpower and money if carried through to success. The separation of children from sources of infection would mean abnormal expense for the care of those children. The eradication of leprosy cannot be accomplished without funds. In time, governments can be expected to cover the expense of treatment, and ultimately perhaps the expense of public health education, but the care of well children and the rehabilitation of ex-patients, as well as the spiritual care of all patients, will have to be provided with private funds. It is possible to rid the world of this age-old source of human misery.

We now come to the question of whether or not we really want to do it. In 1874 Doctor Gerhard Armauer Hansen, a Norwegian scientist, isolated the germ. 1974 would be a very meaningful time to celebrate the attainment of a worldwide control over leprosy. In the United States there is great need for an enlightened public opinion. Our public health authorities could make even greater progress in the control of the disease if it were not for an irrational, highly prejudicial public attitude that still forces people to hide their symptoms as long as possible, thus endangering those near and dear to them.

Distribution of Leprosy in the United States
Based on Admissions, by States, to the National Leprosarium
1921-1953

Alabama - 4
Arizona - 9
Arkansas - 6
California - 294
Colorado - 13
Connecticut - 1
Delaware - 1
District of Columbia - 8
Florida - 102
Georgia - 10
Idaho - 0
Illinois - 36
Indiana - 6
Iowa - 0
Kansas - 6
Kentucky - 4
Louisiana - 326
Maine - 0
Maryland - 8
Massachusetts - 20
Michigan - 13
Minnesota - 9
Mississippi - 12
Missouri - 11
Montana - 2
Nebraska - 2
Nevada - 0
New Hampshire - 0
New Jersey - 7
New Mexico - 2
New York - 158
North Carolina - 2
North Dakota - 0
Ohio - 12
Oklahoma - 3
Oregon - 5
Pennsylvania - 11
Rhode Island - 1
South Carolina - 4
South Dakota - 2
Tennessee - 2
Texas - 324
Utah - 0
Vermont - 0
Virginia - 9
Washington - 11
West Virginia - 1
Wisconsin - 4
Wyoming - 1
States of Residence Unknown - 4
Total - 1,465

So there is work still to be done here in the U.S.A. in regard to Hansen's Disease. Moreover, as long as neighboring countries are endemic, our hearts may not rest. These days, when we are only twenty-four hours away by air from almost any country, all people are our neighbors in a very real sense. When millions of these neighbors suffer from leprosy, we are bound to be concerned. Worldwide eradication of the disease is the only solution that will satisfy. "Where there is a will, there is a way."

WORLD DISTRIBUTION OF CASES OF LEPROSY*

Location	*Known*	*Estimated*
Aden	29	?
Anglo-Egypt. Sudan	8,602	?
Angola	96	?
Antigua	90	?
Argentina	6,032	12,000
Australia	724	?
Bahamas	21	?
Bali	2,178	?
Barbados	74	200
Basutoland	8,138	?
Bechuanaland	50	?
Belgian Congo	71,850	200,000
Bermuda	5	?
Bolivia	500	1,400
Borneo	600	?
Brazil	61,191	?
Br. Guiana	1,172	?
Br. N. Borneo	42	?
Br. Solomon Is.	221	900
Br. Somaliland	?	200
Burma	1,727	111,000
Canada	8	?
Caroline Is.	75	?
Celebes	3,500	?
Ceylon	3,959	?
China	3,395	1,000,000
Colombia	8,412	30,000
Costa Rica	194	?
Crete	261	?
Cuba	2,840	5,000
Cyprus	98	?
Dominica	50	?
Dominican Rep.	262	?
Easter I.	51	?
Ecuador	124	1,000
Egypt	11,000	30,000
El Salvador	?	200
Eritrea	559	2,750
Estonia	113	?
Ethiopia	1,048	50,000
Fiji	429	?
Finland	9	?
Formosa	443	4,000
France	300	?
Fr. Cameroons	23,000	?
Fr. Equat. Africa	30,000	50,000
Fr. Guiana	1,131	1,850
Fr. India	1,967	?
Fr. Morocco	259	?
Fr. Oceania	387	?
Fr. W. Africa	70,000	200,000
Gambia	267	700
Gold Coast	2,048	8,000
Greece	887	3,000
Grenada	12	?
Guadeloupe	1,000	1,600
Guatemala	?	200
Haiti	7	1,500
Hawaii	475	?
Honduras	?	200
Iceland	12	?
India	140,000	1,700,000
Iran	520	2,000
Iraq	270	?
Israel	34	150
Italy	364	?
Jamaica	529	?
Japan	8,510	50,000
Java	10,000	?
Kenya	552	35,000
Korea	13,276	40,000
Leeward Is.	75	?
Liberia	1,150	2,300
Lombok	310	?
Loyalty Is.	416	?
Macao	70	3,000
Madagascar	15,711	40,000
Malaya	1,823	?
Malta	109	260
Mariana Is.	15	?
Marshall Is.	3	?
Martinique	177	900
Mauritius	48	?
Mexico	8,000	24,000
Moluccas	1,150	?
Mozambique	4,276	30,000
Nauru I.	68	?
New Caledonia	1,063	?
New Guinea	350	2,000
New Hebrides	88	?
Nicaragua	?	200
Nigeria	150,000	400,000
Norway	11	?

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*By courtesy of the American Geographical Society

Nyasaland	4,896	30,000
Okinawa	400	?
Panama-C. Z.	109	?
Paraguay	1,183	9,000
Peru	1,137	3,000
Philippines	5,899	18,500
Portugal	1,416	3,000
Port. Guinea	327	?
Puerto Rico.	197	?
Rèunion I.	832	?
Rhodesia, N.	1,714	20,000
Rhodesia, S.	1,739	7,000
Ruanda-Urundi	?	600
Rumania	4,000	?
Ryukyu Is.	1,582	?
St. Croix	90	?
St. Lucia	50	?
St. Thomas	32	?
St. Vincent	11	?
Samoa	25	?
Sarawak	418	?
Seychelles	47	?
Sierre Leone	3,656	?
Singapore	536	?
Spain	1,708	8,000
Sp. Guinea	?	8,000
Sumatra	3,250	?
Sunda Is.	3,500	?
Surinam	726	1,200
Swaziland	?	200
Sweden	6	?
Syria	70	250
Tanganyika	8,000	100,000
Thailand	1,785	60,000
Togo	10,298	?
Trinidad	462	1,000
Turkey	400	?
Uganda	3,560	80,000
U. of S. Africa	6,161	8,000
United Kingdom	100	?
United States	390	2,000
U.S.S.R.	3,000	?
Uruguay	25	1,000
Venezuela	2,795	3,000
Viet-Nam	4,000	15,000
Wallis I.	48	?
Zanzibar	129	?

CARVILLE*

N. CARL ELDER

The world will "beat a path" to any place where outstanding service is being rendered, and so princes, high officials, doctors, nurses, missionaries, and people from many walks of life from all over the world make their way to Carville, a small village on the banks of the Mississippi River, not far from Baton Rouge, Louisiana. Here is located the only hospital in continental United States for the care and treatment of Hansen's disease (leprosy).

Just how or when this disease was first brought to the new world is not known. The first "lazaretto" was established in 1776 by Ulloa, the first Spanish governor of New Orleans. This was destroyed by a hurricane and another established but little interest was taken and it fell into decay and disrepute. During a period of seventy or eighty years practically no attention was given to the care of the disease. The resulting increase in its incidence created in 1878 a demand for the establishment of a hospital for its care. The Louisiana State Legislature voted funds for the purpose and directed that the institution be erected near New Orleans. The site finally chosen, after considerable delay, was not near the city but about seventy-five miles up the Mississippi River in the Parish of Iberville.

Here was a deserted estate known as the Indian Camp Plantation of about 359 acres with an old dilapidated mansion and seven slave cabins on it. This was purchased and the first group of patients arrived in a coal barge, towed up the river by a tug, on November 30, 1894. Only the most primitive and basic care was provided for them and it was not until the arrival of four sisters of the order of Saint Vincent de Paul on April 26, 1896, that proper medical care was begun.

The hospital was gradually enlarged under state control and began receiving patients from other states. In 1917 the evident need for a federal institution led Senator Ransdell of Louisiana to introduce a bill into Congress to establish one. Delays followed and it was not until February 1921 that the old state location had been bought and Dr. O. E. Denney, of the United States Public Health Service, took charge of the new federal hospital. The cost to the government was $125,000. Mr. William Danner, the General Secretary of the organization now called American Leprosy Missions, was responsible, perhaps more than any other person both for getting the bill passed and the purchase made.

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Today each patient is assigned a private room in one of the sixteen fire-proof steel and concrete buildings and every modern facility for his care is provided in the infirmary. A resident staff of five doctors, a dentist, and twenty-three nurses assisted by patient orderlies make up the medical staff. In addition to these, specialists from New Orleans make regular visits to supplement the work of the local staff. The chaplain is often asked if this is a Roman Catholic institution since the nurses are Catholic sisters. The answer is no. In recognition of their long years of faithful service when the hospital was under state control the sisters were retained by the federal government but receive the same compensation as all Public Health nurses of equal rating. Two regular Public Health nurses are rotated every four months for the purpose of training in the care of this disease.

The number of cases of Hansen's disease in this country is unknown. Estimates of from 1500 to 3000 have been made. Whatever the actual number, about 330 are now under treatment at Carville. The records of the hospital show that between 1894 and July 1, 1954, 2460 patients had been admitted to the institution. Of this number 658 have died in the hospital; 487 have become arrested cases, and 50 others discharged as non-infectious. Some have been impatient with the prolonged treatment and left without medical permission, a few have been transferred to other institutions or placed under local care, and 70 non-U. S. citizens have been deported. At the end of the year 1953 there were 167 white Americans; 97 Mexicans; 18 Filipinos; 23 Mongolians; 37 Negroes and one East Indian, resident in the institution. These people come from all classes of society and many professions. There are over twice as many men as women. Three-fourths of the patient group come from the four states, Texas, Louisiana, Florida and California; the rest from 38 other states. Two-thirds of them are Roman Catholics. Among the others most are Protestants but there is a small group belonging to the Eastern Orthodox Church, one is Jewish, a few are Buddhists. and some profess no religious faith. They range in age from 14 to 94 years.

As a result of treatment with the sulfone drugs, first used and tested at Carville, about fifteen percent of the patients are dismissed yearly as arrested cases, and the number that reactivate is smaller than ever before. Remedial surgery is restoring usefulness to hands and feet. Trained physio-therapists give treatments that help keep nerves and muscles from becoming withered. Skilled occupational therapists guide in work that will restore suppleness and skill to stiffened hands. A sympathetic medical social worker is ready to help in the many problems that face the patient in residence and the patient about to be discharged. A school, certified by the Louisiana State Board of Education, and staffed by competent teachers, is provided for the few patients of school age as well as adults who wish to study.

Two chapels provide religious life and activity. The Public Health Service makes no official provision for a religious ministry in its hospitals and so both the chapels and the chaplains at Carville are a gift of the churches to the institution. American Leprosy Missions, Inc. maintains the Protestant work. The chaplains carry on a full program of religious work together with the hospital visitation. The Protestant chaplain has Bible study classes as well as the regular Sunday worship services. There has been a growing interest in spiritual things and increasing attendance. This interest has also been shown in the offerings voluntarily given by the patients, all of which are sent to American Leprosy Missions to help in the foreign work. The patients always appreciate visits from the chaplain and talk over problems that constantly arise in their lives. A fine spirit of fellowship and cooperation make the religious ministry both enjoyable and constructive.

The people of the United States have provided generously for the care of those suffering from Hansen's disease. But an objective still far from being reached is intelligent public understanding of the nature of the disease and the removal of its stigma. The patients at Carville share with one another and the rest of mankind the desire to be wanted, not rejected; to be allowed opportunity in spite of their disease, not denied opportunity because of it. The fear of being feared is deeper and more poignant than the physical suffering of the disease itself. Hansen's disease is perhaps the least communicable of all diseases. While common in many parts of the world, it has not within modern times been known to reach epidemic proportions. It is not a sign of Divine displeasure, nor is it "unclean" in either a physical or moral sense. An arrested case can, without danger, take a normal place in society. The acceptance of these few truths by people generally would relieve many a discharged patient of utterly needless mental pain.

As Christians let us apply the Golden Rule in our attitude towards Hansen's disease. This is your greatest contribution to H.D. patients in this country.

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES ON HANSEN'S DISEASE

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SECTION V

CHAPTER IV

MUSCULAR DYSTROPHY

THE MUSCULAR DYSTROPHIES, BY HELEN M. WALLACE

THE PSYCHO-SOCIAL FACTORS IN MUSCULAR DYSTROPHY, BY ROBERT S. MORROW AND JACOB COHEN

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AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE MUSCULAR DYSTROPHIES

HELEN M. WALLACE

The muscular dystrophies are primary chronic degenerative diseases of the muscular system characterized by progressive symmetrical muscular weakness. The innervation of the affected muscles is sound. Muscular dystrophy was first described by Aran in 1850.

Classification of the Muscular Dystrophy

There are four clinical types of muscular dystrophy:

1. *Pseudo-hypertrophic Muscular Dystrophy of Duchenne.* This is the most common type. It develops in the first few years of life, is most commonly recognized between the ages of 3 and 7 years, and is largely confined to the male. It is characterized by pseudo-hypertrophy of muscles, particularly those of the calves of the legs, and by symmetrical progressive weakness which usually renders the patient unable to ambulate by the time he is in his teens. This type is progressive and is seldom compatible with survival to adult life.

2. *Facioscapulohumeral Type of Landouzy and Dejerine.* This is the second most frequent type. It is characterized by early involvement and progressive loss of power in the muscles of the face, shoulder, girdle, and upper arms. The patient has difficulty in closing his eyes, loses the ability to wrinkle his forehead, and has weakness of the muscles around the lips. Later on in the disease, the weakness may spread to involve the muscles of the trunk and lower extremities. This form usually occurs at a later age than does the pseudo-hypertrophic type, although it may occur in early childhood. This type affects both males and females in approximately equal numbers. Only a small proportion of affected persons are incapacitated before they are old. This group includes Erbs 'juvenile dystrophy'.

3. *Progressive Dystrophic Ophthalmoplegia.* This is a rare type. It is a very slowly progressive disease involving primarily, and usually limited to,

the levator muscles of the eyelids and the external ocular muscles, resulting in ptosis and ophthalmoplegia, with familial incidence in approximately half of the patients. This type can begin at any age, but most cases develop before the fourth decade of life. It affects both males and females.

4. *Dystrophia Myotonica* (Myotonic Dystrophy). This is a rare type. It is a steadily progressive, familial disease with weakness of the muscles of the face, the levator muscles of the eyelids, the muscles of the extremities, and involvement of non muscular tissues such as cataracts, testicular atrophy, and disorders of the endocrine glands. It occurs in older patients, and the muscular wasting, while it can begin at any age, is most commonly not noticed until the third decade. It affects both males and females.

Incidence and Prevalence

The incidence and prevalence of muscular dystrophy are unknown. It has been estimated that there are approximately 200,000 persons with the disease in the United States.

Data from the register of handicapped children in New York City maintained by the Bureau for Handicapped Children of the New York City Department of Health are reproduced in the accompanying table.

These data indicate that approximately 20 children and youth under the age of 21 years are reported annually to the New York City register in a community of 8,000,000 population; the degree of completeness of this community mechanism of voluntary reporting is unknown. In the muscular dystrophied patients reported to the New York City register, the age group with the highest number is 5 through 9 years. Patients with muscular dystrophy comprise slightly less than 1% of all patients with orthopedic or neuromuscular conditions reported to the New York City register.

Data indicate that the onset of muscular dystrophy of all types may occur in the preschool and school age periods of life. In a study of forty patients by Shank and others[1], 62% of the patients had their onset prior to the age of 11 years. In another study of forty-four patients at the Goldwater Memorial Hospital in New York City by Weisenfeld and Messinger[2], 55% of the patients had their onset prior to the age of 11 years; in this study, 20% had the onset of their dystrophy by their fifth birthday.

Cause

The exact cause of muscular dystrophy is unknown. Much research to determine the cause is being carried on at the present time by workers throughout the United States. Heredity is a definite factor. The hereditary patterns indicate that both the severity of the disease and the distribution of the affected muscles in the individual patient are primarily determined by differences in the linkage of a faulty gene. Little is known of the way in which a genetic disturbance can produce atrophy and degeneration of muscle fibers at a certain period of life. One hypothesis is that through an inborn metabolic fault certain skeletal muscles, particularly those which develop first during fetal life, cannot be sustained in a state of health for some reason as yet unknown.

TABLE I

PATIENTS WITH MUSCULAR DYSTROPHY REPORTED TO THE REGISTER IN NEW YORK CITY

Year	Total Number of Orthopedic & Neuro-Muscular Patients Reported	Total Number of Muscular Dystrophy Patients Reported	Age Breakdown						
			Under 1 Yrs.	1-4 Yrs.	5-9 Yrs.	10-14 Yrs.	15-19 Yrs.	20 Yrs.	Age Unknown
1953	2930	21		1	12	5	1		2
1952	2745	28		1	13	9	2	1	2
1951	2542	18		1	12	4	1		
1950	2426	21			13	6	1		1
1949	2488	22		2	11	4	1	1	3
1948	2342	25	1	2	18	4			
1947	*	*							
1946	*	*							
1945	2297	17	1	2	8	3	3		
1944	1997	11							
1943	996	14		1	4	7	2		
1942	1746	16		1	6	5	4		

*Data not available

While isolated cases of muscular dystrophy are encountered, muscular dystrophy is a family disease. The pseudohypertrophic type is usually inherited as a sex-linked disease. In other words, it appears in the male, but is transmitted through the female. It is thought to be inherited as a mendelian recessive. The facioscapulohumeral type is usually inherited as a simple dominant, whereas Erbs juvenile dystrophy is thought to be inherited as a simple recessive. The ophthalmoplegia type has been reported both as a simple dominant type and as a simple recessive type. Myotonic dystrophy is also strongly familial. The inheritance tends to be dominant with direct transmission from parent to child, but the dominance may be variable, for in some cases both parents are normal.

For a fuller discussion of the role of heredity the reader is referred to the summary by Bell[3]. She concluded that the same main gene can produce any of the clinical types, but it is usual although not invariable for the same clinical type to be repeated in the same family.

The Clinical Picture of Muscular Dystrophy

There may be great variability in the clinical picture. Certain forms of the classic types are recognized, but there are many patients who do not readily fit into a standard classification. A common feature of all types is the progressive symmetrical weakness leading to functional impairment after a variable interval of relatively slow progression over a period of years. Most types appear in childhood. Ordinarily, the younger the age at which the disease appears, the more rapid is its progress.

The Pseudohypertrophic Type. From the start it may be noted that the child has not been as active as other children. Often there is a delay in the age at which the child starts to walk. The usual complaint is that the child falls easily, has trouble getting up when he falls, runs poorly, and has difficulty going up steps. Fatigability is common. The mother may comment that "the child is so muscular and yet he seems so weak." This type is most commonly recognized between the ages of 4 and 7 years.

Early signs include firm calves of the legs, tendency for the child to go up on his toes in walking, 'sliding through' or 'telescoping' when the child is lifted under his arms, and difficulty in arising from the floor. Gait tends to be waddling, and the feet are carried wide apart. Typically, the child turns over into the prone position, gets up on all fours, and then "walks up his legs with his hands" until he can maneuver into the erect position. Examination of the power of the muscles shows that they are symmetrically certain muscles are affected earlier and to a greater degree. 'Sliding through' weakened. The trunk and extremities are equally involved, although when the patient is lifted under his arms is due to weakness of the muscles of the shoulder girdle. Weakness of the anterior abdominal muscles at an early stage is common. The child is unable to sit up from the recumbent position, and weakness of the neck muscles may be such that when the child is lying in the supine position, he cannot lift his head from the table. Those muscles showing pseudohypertrophy are enlarged and firm to palpation. The muscles of the calves almost always show this characteristic to a marked degree. The muscles of the thigh are particularly thin and flabby in striking contrast to the calves.

Weakness is slowly progressive, although there may be quite long periods in which no progress in the weakness can be noted and even some improvement may be seen. As the disease progresses and as imbalance in the power of muscles in various parts occurs, deformities develop, especially flexion deformities at the hip and knees, and equinus of the feet. If deformities of any degree are allowed to develop, they further inhibit the activity of the individual and may prevent walking at an earlier age than would otherwise ensue. The patients gradually become weaker, unable to walk, and eventually bedridden. Death usually occurs from intercurrent respiratory infection. The inability to walk usually develops by the teen-age period, although on occasions the progression is delayed and the individual preserves this ability during early adult life. Involvement of the heart with the disease may also occur. In general, the later the age at which the process is observed, the slower its progress and the longer the ability of the individual to carry out functional activity.

The Facioscapulohumeral Type. The onset of symptoms or signs is usually recognizable between the ages of 7 and 20 years. The most common age of onset is 3 to 15 years[1]. Usually the first symptom is a difficulty in raising the arms above the head, but in many patients the inability to close the eyes completely, owing to weakness of the muscles of the face, has already been noticed since early childhood. Inability to whistle or to purse the lips, and a peculiar looseness and protusion of the lips are common. The eyes are not completely closed in sleep.

This type of dystrophy is usually mild in its entire course. In many cases, it leads to disability of mild degree, compatible with a useful life. The great majority have lived or are enjoying a normal life span with only minor disabilities. Other patients have more seriously incapacitating disabilities, and a few are wheelchair or bed patients.

Both of the above types of patients may develop abnormalities of the spine (lordosis, scoliosis).

Changes in the Affected Muscles. The changes occur primarily in the muscles. Such changes are not dependent upon lesions of the nerve or the spinal cord, even though secondary degeneration may be present in these structures.

The lesions of muscular dystrophy are essentially the same, no matter what the clinical type. The individual muscle fibers waste. Certain of the fibers may actually hypertrophy to several times the size of the normal fiber, but this in only a temporary process. Eventually the hypertrophic fibers share in the general atrophy. Replacement of the muscle fibers by connective tissue occurs as the atrophy goes on, and coincident with the muscle atrophy a deposition of fat takes place in the muscle. This may largely compensate in amount for the atrophy of the true muscle substance, so that the diminution in size of the whole muscle may be very gradual. The deposition of fat may even be excessive and thus lead to pseudohypertrophy.

Biochemistry. A few pertinent biochemical facts are known. Patients with muscular dystrophy usually excrete in the urine a large amount of creatine and a smaller amount of creatinine than normal. However, this is not characteristic of muscular dystrophy alone, being found in any condition in which the volume of normally metabolizing muscle is reduced. The creatine tolerance is reduced in muscular dystrophy; when creatine is fed by mouth, it is excreted in the urine almost quantitatively.

Chemical examination of the muscles shows reduced amounts of the phosphorus compounds in a given volume of muscle.

Progress and Prognosis. The course of the disease is generally slow and sometimes irregular. The course is often more rapid in early childhood, and slower after puberty.

In the pseudohypertrophic type, the ultimate prognosis is grave, most patients dying in from 5 to 10 years after onset. Death seldom results from the disease itself, but rather from some intercurrent disease, particularly respiratory.

In the facioscapulohumeral type, the course tends to progress more slowly, and the ultimate prognosis is considerably better. Many patients with this type of muscular dystrophy are able to lead normal or near normal lives.

TREATMENT

Since the cause of muscular dystrophy is unknown, there is no specific treatment or cure. Many investigators have attempted to use such products as Vitamin E preparations, glycine, testosterone, adrenocorticotrophic hormone (ACTH), pyridoxine and other vitamins, pituitary and other hormones, and protein hydrolysate. None of these has been successful.

Because of the fact that atrophic muscles tend to shorten and to produce deformities, especially when the patient is immobilized in a wheelchair or is bedridden, prevention of deformities is important in the care of the patient. Regular physical therapy and other rehabilitation measures which combat the deforming tendencies are an important part of the regimen of patient care. Exercises for the weaker muscles should be encouraged. Operative measures to correct deformities are rarely desirable, since deformities which would require operative procedure occur at a time when the muscle weakness is such that the results obtained do not warrant the procedures. Patients should not be kept in bed for any long period of time since the weakness progresses rapidly when they are so confined. If the patient must be immobilized, exercises directed toward preventing deformity and maintaining muscle strength should be performed regularly. Underlying the provision of physical or other forms of therapy services is the need for competent continuous medical care and supervision. A careful evaluation and an accurate diagnosis at as early a stage as possible are the first steps in the management of the patient. Precautions should be taken toward minimizing the possibility of developing intercurrent respiratory infections, and steps should be taken to secure prompt medical attention when the first signs of a respiratory infection appears.

PSYCHOSOCIAL ASPECTS

At this stage in the development of knowledge about the cause and treatment of muscular dystrophy, the management of the psychosocial aspects of patient care assumes great importance. In spite of this acknowledged fact, too little attention up to the present time has been paid to the emotional and social needs of the patient and of his family.

Morrow and Cohen[5] recently studied a group of 29 patients and their families. Their summary of findings follows this chapter.

Bernstein and Malter[6] in 1953 did a study of 34 muscular dystrophy patients and their families. In the 34 families studied, there were 31 muscular dystrophy children and 7 muscular dystrophy adults; 17 of the children were on home instruction, 5 attended regular school classes, and 6 attended special or orthopedic classes. Due to the high incidence of respiratory illness and other complications, over one half of the families had annual medical bills of $300 to $800 for the muscular dystrophic patient alone. One half of the group were homebound with little opportunity for normal social contacts. Recreation consisted mainly of watching television and an occasional outing. In most families, the physical care of the patient so drained the parents of physical and emotional energies, that little strength remained for normal parental pursuits. Absence of transportation for 17 children and 4 adults was a major factor in keeping this group almost completely homebound. Five children and 5 adults were receiving no medical supervision; a major problem for all the families was inability to obtain competent medical care within the home. Two thirds of families demonstrated marked disturbance in interpersonal relationships, and expressed interest in receiving some form of psychological help. Only one of the seven adults was gainfully employed.

Most of the parents indicated their interest in obtaining a centralized educational center for their dystrophic children. Most of the families expressed as paramount the need for physical therapy. Most families had marked recreational and socialization needs for adults and children. One half of the families had housing which was inadequate for even minimal needs of the dystrophic patients. The parents expressed the belief that bus transportation to and from school was inadequate because no provision was made to assist the child on and off the high bus steps; because of this, children are often prematurely excluded from attendance at school. Another need was for mechanical lifters for moving the heavier and completely helpless children from wheel chair to bed and toilet. Five children needed speech therapy. A majority of the families needed competent local medical facilities. Adult patients needed specialized training, vocational counseling, and placement services.

ORGANIZATION OF COMMUNITY SERVICES

While many communities provide 'pieces' of services for patients with handicaps, including muscular dystrophy, usually a community plan is necessary to provide broad comprehensive care for the majority of patients who may require it. Continuing studies and evaluation of currently provided services, partly met needs, and totally unmet needs are essential to assure a high quality of services and to eliminate current gaps in services. Any community plan should include all aspects of patient care — the medical, psychological, social, educational, and vocational. Services for patients with muscular dystrophy should ideally not be separate from services for other types of similarly handicapped patients, but rather should be closely planned and integrated with services for such other patients.

With these principles in mind, the following plan is suggested as a guide for organization of community services for patients with muscular dystrophy.

1. *Early Case Finding.* In addition to the usual community services providing health supervision of patients in a community (practicing physicians, hospital outpatient departments, health insurance plans, well child conferences, school health services), an obvious source of early case finding would appear to be those families with a known family member with muscular dystrophy. The known hereditary factor and familial incidence should make it possible, by following such family units more carefully, to find new patients with muscular dystrophy at a much earlier stage.

2. *Diagnosis, Treatment and Rehabilitation.* Services of high quality for the diagnosis, treatment, and rehabilitation of patients with muscular dystrophy are essential for the patient and his family. Such services would consist of a team of experts composed of the following professional disciplines: medicine (a pediatrician for children, an internist for adults, a specialist in physical medicine and rehabilitation, an orthopedic surgeon, a psychiatrist); social service; psychology; nursing, therapy services (physical, occupational and speech); vocational counseling. These basic members of the team are essential, whether the patient is attending a hospital outpatient department, is attending school, or is homebound and under the care of a home care program.

3. *Services For The School Aged Child At School.* Wherever possible, it is desirable for the handicapped child who is able to attend regular classes within a public school system to do so. For those children so disabled that they cannot do so, special medical, health, and educational services should be provided on a coordinated team basis. Thus, such children with muscular dystrophy might attend a special school or special class units for all children moderately to severely disabled with orthopedic, neuromuscular and locomotor problems. Whichever plan is adopted, the basic essential services are similar: medical services (a pediatrician, a physiatrist, an orthopedic surgeon, and a psychiatrist); public health nursing service; social service; a psychologist; therapy services (physical, occupational and speech); teachers with special training in the field of exceptional children; vocational counseling service; attendant service. Transporation of such quality should be provided that children who are moderately to severely disabled, including wheelchair patients, can attend school; attendant service and ramps or other appropriate devices should be an essential part of the transportation plan. The physical plant of the school should be appropriate to the children's needs — equipped with elevators, ramps, and siderails; the necessary equipment; and with easy accessibility to lunchroom, toilets, rest rooms, recreation rooms, etc.

4. *Home Care Service For The Homebound.* For the patient who is truly homebound and physically unable to leave the home, an organized home care program is a necessity. For such patients, including those with

muscular dystrophy, special medical, health and educational services should be provided on a coordinated team basis. The basic essential services would include medical services (a pediatrician for children, an internist for adults, a physiatrist, a psychiatrist, an orthopedic surgeon,) public health nursing service; social service; a psychologist; therapy services (physical, occupational and speech); teachers with special training in the field of exceptional children for the children; vocational counseling services; recreational service; housekeeping and homemaker service; transportation; and equipment.

5. *Housing.* For those families with serious housing problems, it is desirable and at times possible to make arrangements with the governmental housing agency to provide better housing, either in ground floor apartments, or in apartments in elevator buildings. Some apartments should be planned for and equipped for families having a handicapped member, having wider doorways for wheelchairs, special equipment, etc.

6. *Foster Home Placement.* At times, a good foster home may prove to be the solution for a particular family or social problem, — either on a short term or long term basis. Many communities now provide a special foster home placement program for handicapped children for such purposes.

7. *Recreation.* Organized facilities for recreation of the handicapped are an important ingredient in a broad comprehensive program for the handicapped. Such services are provided through the conventional recreation centers, or in schools, at home, in summer residential or day camps, or in summer day camps, etc. Once the services are provided, the appropriate service should be selected which will best meet the needs of the patient with muscular dystrophy.

8. *Vocational Services.* For patients in their early teens, an adequate vocational testing, guidance, training and placement service may make the difference between an independent and productive member of the community on the one hand, and a completely dependent one on the other. Vocational services, then, are an essential component in any comprehensive community program for handicapped children. It is recommended that the vocational services be coordinated with, if not really a part of, the diagnostic, treatment, and rehabilitation services of the community; the advantage of this plan is that the vocational services will be made available to the patients at an earlier age, and the vocational staff will have adequate medical and health data easily available on the patient's potential capacity.

9. *Transportation.* Transportation of adequate quality is a necessity for those patients who must attend clinics or recreational programs, for school aged children attending school, and for handicapped workers. The basic principles in transportation of the handicapped include (1) a transportation vehicle which has easy ingress and egress for the patient, including moderately-to-severely disabled patients such as those in wheel chairs; this may necessitate the use of ramps, etc.; (2) Attendant services to assist the patients on and off the vehicle, and to supervise the patients during the trip; (3) coordination of services in any given community so that the available vehicles and attendant services will be used to full capacity.

10. *Information and Counseling Services.* Because many families and many patients, even though they may have lived for a long period of time in a community, may not be aware of the variety of community services available for the handicapped and how to go about taking advantage of them, it is usually considered necessary for at least one central information and counseling service to be provided to fulfill this need. This step, of course, may be vital in many instances to channel the patient to the available services, or the services to the patient.

States and local communities usually have one or more agencies concerned with the care of handicapped patients, including those with muscular dytsrophy. To cite the more usually available agencies:

(1) The state or local official Crippled Children's Agency
(2) Branches of such national organizations as
  (a) The Muscular Dystrophy Association
  (b) The National Foundation For Muscular Dystrophy
  (c) The National Society For Crippled Children and Adults
(3) The state or local health, welfare, and education departments
(4) Community social agencies
(5) Community visiting nurse agencies

SUMMARY

The muscular dystrophies are chronic diseases of several types, each with its characteristic pattern and picture. Considerable research is necessary in order to find the cause and therefore the 'cure' for muscular dystrophy. Meanwhile, however, much can and should be done to assist the patient and his family so that care of a broad and comprehensive nature will be provided. In general, it is desirable that emphasis be placed on a patient's potential abilities, rather than on his disability. To assist the patient to carry on as well as he can with what he has available is the essential in rehabilitaton.

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THE PSYCHO-SOCIAL FACTORS IN MUSCULAR DYSTROPHY*

ROBERT S. MORROW AND JACOB COHEN

Modern progressive medical practice with its emphasis on the whole person, integrates the somatic and psychological factors in disease. Although the literature pertaining to the medical aspects of muscular dystrophy is rather extensive and impressive regarding the clinical, genetic and physical-chemical aspects, very little consideration has been given to the psychological and social concomitants of this disabling disease.

Ripley, Bohnengel and Milhorat[3] studied the personality factors in 67 patients with various types of muscular disability including ten with muscular dystrophy. They reported that emotional changes often accompanied altered performance of muscles and that the type of adjustment depended on a complexity of factors including the personality prior to the illness, the age of onset, the type and course of the disability, etc. No differentiation was made between the ten cases of muscular dystrophy and the other disabilities despite the fact that there seem to be significant differences between progressive muscular dystrophy and the others in relation to age of onset, its progressive, and insidious nature, poor prognosis, etc. Other than this, careful search of the literature failed to reveal any work on the psychological and social aspects of muscular dystrophy.

Purpose of the Investigation

The basic hypothesis of this study is that muscular dystrophy as a serious physical disability may produce concomitant emotional and social maladjustment. The purpose of this research was to determine the nature as well as the extent of the psychological and social maladjustment of the patient. The main design of the experiment was first a psychological assessment of the patient and secondly a study of the attitudes of the patient and his family toward the disease itself as well as related psycho-social factors.

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Included in the psychological evaluation of the patients were standardized tests of intellectual functioning, school achievement and projective personality techniques. Specifically, each patient was seen at home by a member of a team of four psychologists and was given the verbal half of the Wechsler Intelligence Scale for Children, the Gray Oral Reading Paragraphs Test as an index of his educational level through reading achievement and four cards of Bellak's Children's Apperception Test as a projective personality evaluation technique. In addition, extensive interviews were conducted with the patient and separately with his father and mother in order to determine important aspects of the personality of these individuals, i.e., their attitudes, feelings, aspirations, etc. and the possible influence of these upon the disease. In the interview with the patient he was asked questions: about his schooling, how he spends his day, his hobbies and recreation activities, his relationship with parents, siblings and friends, etc. At all times the attempt was made to determine the patient's feelings and attitudes as well as what he thought others felt about him.

Most of these same areas were included in the interviews with each parent in order to determine their perceptions, attitudes and feelings about the child in relation to the disease. As an example, the mother would, also, describe the patient's typical day, thereby permitting a more complete appraisal. The parents were, also, asked questions to elicit information about how much time they gave the patient and their feelings about it, what they thought were the problems most parents had with their muscular dystrophy children, how they differed from other children, the future, their sacrifices, how they thought the psychologist could help, etc.

The psychologist on the basis of all the factors involved in the interviews and tests finally made an evaluation of the major trends in the patient's personality.

The Group Studied

A total of 29 patients and their families were investigated. Of these, 24 were males and five females. The group was predominantly of elementary school age, but four of the patients were between the ages of 17 and 28.

Although 29 patients were studied, only 25 family settings were involved in the research due to the fact that four families had two children with muscular dystrophy. The typical family consisted of the parents, the patient and one other child, although in four families the patient was the only child and in seven there was more than one other child. The typical mother was about 35 years of age and the typical father around 40. The characteristic educational background of the parents was all or most of a high school education. The estimated family income was most often between $4000 and $5000 per year, but was less than $4000 in four families and more than $5000 in eight. This information was elicited to establish a socio-economic frame of reference.

Generally speaking then, with the exception of the presence of a chronically handicapped child, these families constitute a fairly representative cross-section of the metropolitan area. The group of patients investigated here compare very closely with those reported in other studies, as, for example, in the clinical review of 40 cases reported by Shank, Gilder and Hoagland.[4]

FINDINGS

In a preliminary or exploratory study such as this is, there are many findings. Of these, a good number are of little or no significance, while others seem significant but do not lend themselves to immediate interpretation. In our report today, we will first stress the factual material so as to present as clear a picture as we can of the psycho-social atmosphere of the disease and secondly attempt a preliminary psychological evaluation of these facts and make some recommendations based on them.

First, the patient's activities. Since in the group under study, over one-half are no longer able to walk, are confined to wheel-chairs, and receive their schooling from teachers who come into the home, the activities in which these patients engage reflect this handicap. We find, for example, that our total patient group watch television on the average for four hours a day and that about one-quarter of them spend eight or more hours a day before the television screen. Except for three children no more than one hour a day is spent in reading, and over one-half spend no time in reading. (Many are non-readers — this problem will be discussed later.) Hobbies do not play any appreciable role in this group: more than half have no hobbies, and in only two cases did hobbies account for more than an hour of daily activity. Social play activity also fails typically to account for much of the patient's day: almost half the patients have no friends (although some have many), and only about an hour is spent in social activity. Finally, school work typically accounts for less than an hour a day. It is thus readily seen that watching television characteristically occupies more time than any other single type of activity except sleep.

Turning now to schooling, we find here an area of frequent difficulty. About one-half are in grades one or more years behind other children their age. On the reading test, the general level of school retardation is far more clear and far more serious — of the 23 children who were eight or more years old, 15 (65%) showed reading which was retarded in terms of age expectancy. In 6 of the cases (more than one-quarter), the reading retardation was 5 whole years. Although arithmetic ability wasn't measured with such refinement, it was found that about one-half of the children were retarded in their number-skills as well.

Past investigators, noting the phenomenon of difficulty in learning, have come to the conclusion that muscular dystrophy has, as one of its symptoms, mental deterioration. The patients in our sample were all given the verbal part of the Wechsler Intelligence Scale for Children. Their average IQ was 94, which is about 10 points below the average for N.Y.C. children. This might seem at first glance to substantiate the view that mental retardation *is* a primary consequence of muscular dystrophy. We reject this view completely. We feel that because of the psychological, social and educational consequences of the disease, these children do not function up to their intellectual potential and that the obtained IQ's reflect their depressing functioning.

That mental deterioration in the organic sense is *not* a symptom of the disease is also apparent when we consider the fact that half of our children are classified in the average or bright average range of intellectual functioning. That is, even the intellectual *functioning* (as distinguished from the intellectual potential) of half our group is average or above average. But the half below average tends to be appreciably below average. Still, as already noted, we do not consider this to be "mental deterioration". Some of the reasons for this will become evident as we turn to our next topic, a consideration of the personalities of our patients.

It is, of course, meaningless to talk of the "average" personality of a group of individuals. Personalities can no more be averaged than symphonies or faces or any other complex patterns. However, it is meaningful to compare an array of personalities for dominant trends or characteristics and evaluate the extent of similarity and dissimilarity which there is to be found. The psychologist's evaluation of each patient was not deep going, so that the conclusions here must be considered tentative. However, each psychologist did spend considerable time with the patient during which time he interviewed and tested him both objectively and projectively and certain characteristics were observed.

In about *half* (note that it is only half) the cases, the following trends were observed. First, there was a tendency to emotional immaturity, that is to say, these children behaved with regard to emotional control, expression, and relationships in a way expected of children several years younger. One aspect of this is that they were emotionally heavily dependent on others, particularly their mothers. Another was that they were relatively incapable of tolerating more than the mildest degree of frustration. Secondly, (again this is true only for one-half the cases) it was found that there was a trend toward withdrawal, that is — these patients seem to have lost interest in and attachment to the people in their environment and are living more and more within themselves. Related to this is the finding that there was a very active imaginative life pursued by these patients. A good deal of their energy was spent in unshared fantasy living.

The modern interpretation of the I.Q. is that it measures a person's ability to function on a particular test at a particular time. It is *not* necessarily a measure of potential intelligence — a child's potential intelligence may be considerably higher than the I.Q. level at which he tests. Stated differently, the I.Q. is only an index of what a child *can* do, not of what he could do if the environment were favorably manipulated, or what he could do if he didn't have personality problems.

When these factors are kept in mind, the trend toward poor intelligence test performance is understandable on grounds other than "mental deterioration." To the factors of an educational background both qualitatively and quantitatively inferior to that of other children is added a lowered motivation for intelligence test performance, a withdrawal of interests from the environment, emotional immaturity, and low frustration tolerance. These factors are sufficient to account for the poor test functioning of the 45% of our cases where it is found without positing true mental deterioration. Our conclusion is therefore a hopeful one and leads to both preventive and therapeutic possibilities.

Our findings in regard to the parents are again varied. Turning first to the facts, the most apparent problem of the mothers was that of physical care. In more than three-quarters of the cases studied, the patients needed at least some help in eating, dressing, washing, bathing and toilet functions, and in about half the cases they needed a good deal of help. These problems of physical care, particularly that of lifting the patient, are repeatedly mentioned by both parents as major problems of the mother.

A related problem is that of the mother's time. Quite apart from those physical demands, the patients so completely take up the mother's time, that little free time is left for other vital activities, such as care and attention for the other child or children in the family, social activity, and simply some period of time which she knows is her own. Thus, the physical and time demands on the mother are conceived by the parents as the most important single problem which the mother faces and any disinterested observer would have to agree that objectively this problem is central.

Psychological problems of both the parents, although not so frequently mentioned by them in the interview, are nevertheless present, and are often more responsible for the unhappiness encountered than are the physical problems. When the parents were asked what they consider to be their major problems, some were mentioned or implied with sufficient frequency as to be considered of general significance.

One of these was sensitivity about the curiosity of neighbors and strangers about the patient's condition. This, of course, occurred mostly in instances where the disease had progressed to the wheelchair stage. Another involved a whole host of problems concerning the other normal children in the family: concern about the distribution of the mother's interest and affection, difficulties in the relationships between the patient and the other children, and generally the psycho-socially abnormal environment in which the physically normal children were being raised. A separate problem was the anxiety over the heredity implications of the disease to the other children: for example, the issue as to whether a normal daughter in a dystrophic home is a carrier of the disease and would transmit it to her offspring.

Another problem which is often faced in families with dystrophic children occurs at the point where continued attendance at either a regular or special school becomes so difficult that a decision to keep the child at home and have a home teacher for him must be faced. This is one of the critical points in the psychological course of the disease and has several related aspects. First and foremost, this is a point where painful recognition of the severity of the child's condition is forced upon the parents. Up to this point, it is unlikely that the fact of the illness has been fully accepted. Secondly, this change in the child's status brings with it many real consequences, such as the problem of the mother now being occupied with the patient all day long, the fact that the patient's status with regard to friends and other valuable extra-familial contacts is seriously jeopardized, the danger in the reduction of the rate of learning, etc.

A problem which was only occasionally mentioned, but which permeates the attitudes of the parents and may well be the most serious problem faced, is the painful knowledge that the disease often leads to an early mortality. Some of the parents are actively preoccupied with this, others repress it from their awareness, others accept it and have made some kind of adjustment to it. In any case, the problem is there and is pressing. For example, when the parents' attitudes toward the patient's future were inquired into, only a handful were unrealistic about it. In these few cases, of course, the problem is acute. But even among the many parents whose outlook as expressed verbally is realistic, this concern represents a constantly gnawing heartache.

Focussing for a moment on the father, it is our impression that he typically has a unique problem. He is not as pressed by the daily drudgery of physical care and the continual reminder of the patient's infirmity as the mother is. For nine or ten hours a day, for five or six days a week, his everyday activities do not differ from those of other breadwinners. We have reason to believe that he feels quite guilty in relation to his wife who is so beset by the everyday physical and psychological problems. The guilt stems from the fact that he is much less involved in this drudgery and also the secret yet understandable feeling of relief that it is not he who is taking the brunt of the problem.

With the time of the parents so occupied by the patient, it is perhaps not surprising that about one-third of the mothers and a similar fraction of the fathers report that they have no interests outside the family. However, we did find that a slightly larger proportion, although not quite half, of the parents were active in the Muscular Dystrophy Association. It is our conviction that despite the difficulty involved, it is generally desirable from a mental hygiene viewpoint for these parents in particular to seek outside interests and activities.

An attempt was made to gather data concerning the attitudes of the parents toward the patient and his situation. Naturally, the parents typically feel compassionately toward the patient, although there are occasional exceptions. Only about half the group are really satisfied with the child's teacher and his learning progress, and about one-quarter of the group consider the teacher and the rate of learning poor. Fully half the group are dissatisfied with the friendship status of the child, which, more particularly, means that they feel the child does not have enough friends (it will be recalled that half the children have *no* friends).

Perhaps the question most revealing of parental attitudes was, "Do you feel that apart from his physical difficulty, your child is different from other children?" About one-third of the parents emphatically denied any difference, but another third thought their children did differ significantly. The balance thought that any difference was not significant. The differences which were mentioned were quite varied and many of them agreed with the psychologist's evaluations of the child. For example, several parents mentioned, among other things, the children's emotional dependence, their lack of frustration tolerance and the trend toward social and emotional withdrawal. Symptoms of this kind were more frequently noted by the psychologist than mentioned by the parents, which is, of course, to be expected.

Another revealing question put to the parents was, "How might a psychologist be able to help you with your problems?" Less than one-fifth of the parents responded that a psychologist would be of no use. Of the balance, about a half thought that the psychologist could be helpful in connection with the patient's educational problems specifically and the other half saw the psychologist as potentially helpful with problems of adjustment *not only for the patient,* but for the parents themselves, and even occasionally for other children in the family. Among the uses of the psychologist suggested by the parents were guidance for the parents in their relationship to the child, helping the mothers with their own emotional problems stemming from the child's illness, group psychotherapy for the parents and working in psychotherapy with the child to help with such problems as over-independence, behavior difficulties, poor relationships with the other children, etc. It is noteworthy that there were fully as many parents who saw their own problems as needing psychological attention as those who requested it for the patient.

DISCUSSION OF THE FINDINGS

With the possible exception of the fact that muscular dystrophy is progressive in its disabling effects, these patients seem to behave, on the whole, like most groups of physically disabled children. A host of studies are reported which indicate that the average I.Q. of most groups of handicapped children fall, like ours, somewhat around 90 and, also that their school achievement is on an average, like our group, considerably retarded.[2]

The somewhat lowered intellectual functioning is readily explained by the emotional and educational aspects of the disability, thereby refuting the claim that progressive muscular dystrophy results "in declining mentality",[5] a myth which unfortunately has been perpetuated since the disease was first described by Duchenne.[1] Since academic achievement is considerably below the general intellectual level the feeling is strong that television is very beneficial under optimal conditions for broadening interests and thus stimulating intellectual functioning. Some parents, however, seemed to be pushing the child into intellectual activity as a compensation for the physical disability without realizing the fact that they were possibly attempting to satisfy their own needs rather than those of their children.

The mental health implications surrounding the intellectual and educational problems are significant in that a group of children who are essentially normal in intelligence are frustrated in continuing with their education. Practically all of our parents seemed to be wrestling with this complex problem. To begin with, many were able to recognize the beneficial effects which come from attending school and which transcend mere learning, such as the therapeutic benefits which result from the dynamic social and physical interaction among the children and which militate considerably against retreat into loneliness. Related problems involve the amount of time to be spent in school, the appropriate time for changing school situations, which, in turn are dependent on such factors as the status of the disability, the attitude of the school, the location, the child's feelings, as well as the feelings of his family and friends. On the other hand, this should not be taken to mean that the child should be kept in school at all costs. The resolution of such conflict must inevitably depend upon the careful and expert evaluation of the total situation. For such problems, professional assistance should be made available to the parents.

Many things seem to account for the fact that half of the patient population is emotionally immature as shown by their lack of independence and confidence, lack of activity and association with friends or in associating with children much younger, lack of interest in the activities followed by others of the same group, inability to handle frustrations properly, usually accompanied by temper tantrums, excessive withdrawal from social surroundings, etc.

It has been generally found by psychologists that parental overprotection is most frequently responsible for emotional immaturity. Where this was apparent it seemed to be related to excessive concern of the parents with physical or psychological injury to the patient. There were some parents who felt compelled to give themselves completely to the child without consideration of their own needs or those of the family. While understanding of the child is necessary it should not give way to pity. Here again the psychologist, the psychiatrist, the social worker can help the parent distinguish between constructive understanding of the patient and meaningless and fruitless pity.

Rejection of the child was observed only in a few cases. Where it occurred, however, it was observed mainly as embarrassment at having a disabled offspring. Other reasons which were either given or implied for this rejection were: restriction of the family's freedom, excessive medical and related costs, disappointment over the fact that the child would not be able to follow parental occupational and other plans, etc. Some of these reasons the parent recognized readily while others appeared related to deeper, more unconscious motives which require psychological assistance.

About half of the patients displayed satisfactory personality adjustment and this appeared to be very closely related to secure family relationships. The better adjusted patient seemed almost always to come from the better adjusted home. Here, there was a realistic acceptance of the child's needs, and his limitations; his capabilities, his handicaps. He is neither over-protected, nor rejected but aside from his special needs lives in a normal give-and-take relationship with the other members of the family.

It can therefore be seen that the personality difficulties of these patients are not the result of the dystrophy, per se, but the result mainly of family attitudes.

Many of our parents who have been living intimately with the problem of muscular dystrophy have developed an unusual sophistication about the disease. It is to their credit that they recognize the need for psychological help for themselves and their children. One problem seemed to concern them to an appreciable extent, however, and this was how to tell the child about the disease. That is, at what age should he be told, how much should he be told, etc. In general we can say that according to the precepts of modern educational psychology, the answers to be given to the child depend upon his ability to understand all of the facts involved.

What is of extreme importance, however, is that expert care must be taken in handling this delicate question if the child asks the questions. To begin with it is essential to find out exactly what the child wants to know because he may be asking merely for reassurance. At any rate, the parent should try to avoid excessive anxiety or emotion in giving the appropriate answers.

Since many of the parents do not have sufficient interests outside of the family it should be indicated that the Muscular Dystrophy Association, among its many important functions, seems, in this regard, to fulfill an additional important role for many parents.

Time and other limitations imposed on the present investigation precluded deeper study of many significant factors, which we hope to be able to consider at a future time. Some of these are:

1. To compare ambulatory patients with those in wheel chairs.
2. The problem of sibling relationships including the psycho-social effects on the siblings.
3. A follow-up to determine the dynamic relationship between the progressive course of the disease and the patient's personality.

RECOMMENDATIONS

On the basis of this psycho-social assessment of the muscular dystrophy patient and his family we feel that several recommendations can be made to aid in the emotional adjustment of the patient and the parents:

1. The need for further schooling, preferably away from home, is indicated for most of the patients; unless in specific instances the patient's health is jeopardized. The emphasis in school work should be on special needs, such as remedial reading, development of special abilities and interests, etc.
2. There is a need for more active social activities and organized play and the opportunity to develop various interests and hobbies. This would tend to get the patient away from excessive viewing of television and other passive activity and bring him instead into closer group participation.
3. It is important to get the child away from home frequently to afford a change of some kind for him as well as to give occasional physical and psychological relief to the mother.
4. Wherever possible, arrangements should be considered for helping parents get away from home on occasion. Many stated that they could not risk the use of the ordinary type of baby-sitter.
5. Psychological counseling is very important for many patients. As a matter of fact many of these patients could benefit from individual psychotherapy if it were available.
6. Many of the parents asked for group psychological orientation for themselves. They suggested many significant topics.
7. In order to treat the whole person there is need for a strong integration among the various professions.

Many of these recommendations are interrelated and overlap. It seems that these ends could best be achieved in a central place of some kind. The Muscular Dystrophy Association might consider having such a center to help meet the medical and psychological needs of these patients. Here the child could more likely be able to obtain the required special education; to meet with other children his own age and with similar limitations and problems; to break away from the monotony of being constantly at home; to give and receive social stimulation; and to get the required types of specialized treatment which can more readily be given in such a central place. Where the child has minimal physical and psychological impairment it is, of course, more desirable that he participate in the community itself rather than in such a proposed center.

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AUTHORS' NOTE:

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EDUCATION OF THE MUSCULAR DYSTROPHY CHILD*

MORTON D. SCHWEITZER

Unlike most orthopedic disabilities that occur in childhood, muscular dystrophy is a progressive disease. The childhood type, known as pseudohypertrophic muscular dystrophy, is the most common form and has its onset in infancy although its objective symptoms may not become manifest until the age of five or six. Occasionally, the recognizable defects may not occur until the age of 10 or 12.

The initial manifestations of the weakening musculature occur in the lower limbs. In the affected child, walking may be delayed; falling may occur more frequently than normally; and he often has difficulty in climbing stairs. A characteristic waddling gait marks the young dystrophic child. Later, the musculature of the shoulder girdle and hands is affected, curvature of the spine develops, and the fingers become partially contracted. There is a marked tendency to overweight in these children, which further increases difficulty in walking. As the muscles continue to weaken, contractures of the joints develop. The ankles turn inward and become rigid; and gradually, other joints are similarly affected[12].

The rate at which muscular dystrophy progresses varies sufficiently so that it is impractical to describe an age sequence that has general application. However, the progress of the disease follows a fairly definite pathological course, characterized in turn by orthopedic difficulties, postural changes, and deformities of the hands. Independent walking eventually becomes impossible, and there is a gradual loss of power in the arms. When contractures develop, they set the body in fixed postures which result in immobilization of the parts affected.

Muscular dystrophy is not contagious. Heredity plays a part in about one-third of the cases. It occurs more frequently in males than in females.[10,11] In childhood dystrophy, ten years may commonly elapse between the onset of initial symptoms and total infirmity. Some patients are wheelchair bound before the age of ten; others may continue to be ambulatory past adolescence and into early adult life. Since there is at present no known treatment to arrest the disease, the patient's muscles continue to waste away until he is eventually confined to his bed. When death comes, it is due to an intercurrent infection[11].

When muscular dystrophy has its onset in adolescence, it is known as scapulohumeral dystrophy, and follows a much slower course. It occurs equally in both sexes. While some slight difficulties may have been subjectively noted by the patient in childhood, objective signs may not be apparent until the age of 16 or 18, or occasionally as much as ten years later. In these patients, weakness develops very slowly[10]. In their teens, dancing and walking may quickly tire them and fine manipulative dexterity may be lost. However, this does not interfere with their daily activities, or their education. There are numerous examples of patients who have held jobs through their thirties, requiring great physical strength and a range of motion. In fact, patients occasionally continue to work until a much later age. Many patients who become wheelchair bound in early adult life may experience no marked changes in their physical condition for a number of years. These individuals can remain gainfully employed if problems of transportation and suitable working conditions are solved.

Abilities and Limitations of Patients

There is no apparent central nervous system involvement in this disease. The intelligence testing of several small series of patients, some of whom did not attend school, revealed a mean I.Q. of about 95. This result would suggest that children with muscular dystrophy have normal intelligence but lack motivation to learn because of isolation from social contacts and limited educational opportunities[13, 18].

Due to postural changes, the dystrophy patient often slouches in his seat and leans on one hand. Writing difficulty may result as a consequence and will be more pronounced as hand contractures occur. Tongue muscles are sometimes involved; when this is the case, there may be certain speech disabilities, but these are usually minor and do not prevent classroom participation.

The disabilities associated with muscular dystrophy are limited to the consequences of muscle wasting. The absence of neurological involvement spares these children from medical problems which might affect socializing with classmates. There is no drooling or grimacing, no involuntary body movements, and no incontinence.

Despite the absence of mental retardation and socially disabling manifestations, it is not unusual for the negative facets of this disease to be overstressed. The families of many patients, and often the patients themselves, have been told in childhood that they may not be expected to live beyond the age of ten. However, it is not difficult to find patients who have outlived their projected demise by five, ten or more years[6].

In recent years, medical interest in muscular dystrophy has greatly increased. Patients are being observed more closely, and the wide variation in the onset and rate of progress is recognized and better understood. Many patients have succumbed to intercurrent respiratory infections due to weakened chest muscles. Today, however, advances in antibiotic therapy have greatly reduced this hazard and many lives are consequently saved.

Greater interest in the medical aspect of dystrophy had led to better medical support for patients. In the past, diagnostic failures resulted in neglect of supportive measures which might be valuable. Many patients have *atrophy of disuse* superimposed on the dystrophic weakness. When the use of certain muscles is lessened, patients frequently need help in finding other ways of performing the same function[12]. Emotional factors also play an important part in the loss of muscle function. Disinterest added to disuse accelerates the loss of muscle power. Conversely, activity and interest stimulate any individual to maximum efforts. Dystrophic children who actively participate in classroom programs are better motivated toward the utilization of their remaining muscular abilities[19].

Children with dystrophy can often participate in school programs, and they should be stimulated to do so. Patients prize their independence, which should not be denied them. With encouragement from his teacher, the dystrophic child can continue walking, even when his gait is awkward and slow. However, attention should be given to posture and seating in order to avoid tiring of the weakened back muscles. When the back and shoulder muscles are greatly weakened, a back brace may be medically prescribed.

When the fingers are contracted, the writing hand may soon tire. Teachers have found that a flat writing surface or one sloping slightly away from the body is helpful.

While excessive fatigue is undesirable and should be avoided, immobility is even more harmful. When dystrophy patients are allowed to remain in bed for more than a few days, weakness in the skeletal muscles is accentuated. What might be regarded as special consideration for the dystrophy patient may in effect be an extra hazard.[12,20]

One specific health precaution important for dystrophy patients is the avoidance of colds. Because of the weakened chest muscles, even a simple cold may be a serious illness for a dystrophic child. Sneezing and coughing are difficult and respiratory infections carry with them the possible danger of suffocation.

CURRENT EDUCATIONAL EFFORTS

It is unfortunately true that at present, the great majority of patients with muscular dystrophy receive little or no schooling. This reflects the general deficiency in educational programs for the physically handicapped.[2]

The general advantages of group education are well known, and the arguments in favor of providing opportunities for social development for all young children are well established. It has not been recognized, however, that these opportunities are equally important for handicapped children.

The presence of an orthopedic handicap is problem enough for a child, and the additional impediment of limited social development is a cruel and unnecessary burden. The daily stimulus of contact with his contemporaries is essential to every human being for proper development, and especially to the dystrophy patient. Emotional disturbance is unavoidable in the face of the inexorable decline which progressive illness brings with it. This disturbance is even greater when opportunities for socializing are restricted.[4,15,17]

Experience with other degenerative conditions particularly in the field of geriatrics, has demonstrated to investigators that emotional and social decline can be arrested, or at least postponed, when the proper environment is provided.[3]

Many examples may be cited of adult dystrophic patients who have successfully held jobs in industry and professions, such as accounting, chemistry, and journalism. Others have been able to pursue careers in the fields of art and literature. These examples demonstrate what could be accomplished if dystrophic children were given adequate educational and social opportunities.

Accordingly, it may be helpful to describe a few school programs that now include patients with muscular dystrophy within their scope.

The majority of muscular dystrophy children are on home instruction. Where home instruction by a visiting teacher is provided, it is usually limited to two or three hours per week and offers no opportunity for association with other children in the school atmosphere. In a few cases, particularly in the State of Iowa, telephone facilities are used to provide direct communication between the patient's bedside and the classroom. The child hears the voices of the teacher and classroom pupils and is himself called upon from time to time. This is a great improvement over private instruction because it permits classroom participation by the home-bound child. In many instances, it has had the important accompanying effect of stimulating friendships and visiting by his classmates. Oftentimes, he is brought to school for holiday celebrations and other school events so important to the young child of school age.[5,8,18]

In cities where special schools exist for the orthopedically handicapped, children with muscular dystrophy attend classes and participate effectively in the school program. At the Spaulding School in Chicago, dystrophic children make up one of the more frequent diagnostic groups. The special schools in San Francisco, St. Louis and Los Angeles also include them in their programs. These examples demonstrate that it is possible for dystrophy patients to share in existing educational programs so long as the activities are geared to their health limitations.

There are several special schools for orthopedically handicapped children from rural areas that also make provision for dystrophics. The State of Wisconsin, for example, has established a number of special schools so distributed as to serve all areas of the state. These schools are situated within 75 miles of all residents, except in one region that is sparsely settled. Transportation facilities are provided by the schools, and children who live at distances too great for daily bus travel are boarded in the vicinity of the school at state expense. Another valuable feature of the Wisconsin program is the presence of a traveling clinic, which provides an opportunity for reviewing the health progress of each child and for screening those to be admitted to the special schools. The State of Illinois has established a residential school for educable handicapped children who need medical supervision. Approximately 100 children, including eight with dystrophy, are in residence during the school year and a full program of education, medical rehabilitation, and recreation is provided.[3]

DEVELOPING AN ADEQUATE EDUCATIONAL PROGRAM

A serious impediment to the expansion of educational programs and facilities for patients with muscular dystrophy is the "what's the use" attitude which pervades professional and academic circles. It has been argued that because life expectancy is curtailed, no social purpose is served by making special provision for these severely handicapped children. In reply, it should be noted that the same negativism has been encountered in every educational program that required special attention and increased financial support for its development.

There has been a tendency to treat all dystrophics as though their condition were identical and their disease were progressing at the same level. However, it is now being recognized that the expression of the disease and its rate of progress are both variable. Therefore, if some patients are not able to benefit from an organized school program, that is insufficient reason for excluding others whose condition is milder and whose disability is progressing at a slower rate. If a particular child seems likely to benefit from certain educational, social, and medical activities, these should be provided for him regardless of whether or not all others with the same primary diagnosis can be included.

Fortunately, forward-looking educators and other professionals concerned with the welfare of the handicapped have not been willing to accept the arbitrary exclusion of patients with muscular dystrophy from current programs. Life expectancy for all the handicapped is increasing and may be expected to follow the same course for dystrophics as well.[3] There is increasing recognition that a program for severely handicapped children must be adjusted to the abilities, limitations and circumstances of each child.[7] In time, experience can be expected to show the full range of capabilities of dystrophy patients and the variety of programs needed for their educational development.

Special school facilities are not necessary during the early stages of muscular dystrophy. So long as the orthopedic handicap is not seriously disabling, the child with dystrophy should continue to attend the local school with his neighbors and friends. However, as his disability increases, his self-sufficiency is reduced and eventually he will need assistance. In some schools that have special classes for the handicapped child, facilities may be adequate for a certain length of time; but with increasing disability, he will finally require considerable personal attention and special facilities. By the time he is confined to a wheel chair, attendance at a special school is necessary.

Experience has shown that children with dystrophy can be successfully included in schools for the orthopedically handicapped. The physical plant and classroom facilities of these special schools are also adequate for dystrophic children. Briefly, the principal facilities needed are an entrance without steps, wide corridors, elevators, handrails in corridors and rooms, and suitably distributed toilet facilities. Auditoriums and lunchrooms, as well as classrooms and desks, must be specially designed, and a sheltered entrance or passageway for unloading from transportation vehicles directly into the building is desirable.[5]

Many special schools are also equipped to meet the special health needs of their pupils. Attendants assist the teachers in their personal care; facilities are provided for physical and occupational therapy; and solaria, warm pools, and rest rooms are provided. The teachers are specially trained in the technics of educating handicapped children and are selected for their jobs because of an interest in programs of special education.

Unfortunately, a great number of these schools do not provide direct medical supervision for the children in attendance, and this is an unsatisfactory situation for the muscular dystrophy patient. Since his disability is progressive, the child should receive closer medical supervision than might be necessary for orthopedic conditions that are arrested. Since dystrophic children find traveling particularly difficult, it is essential that educational facilities include not only health supportive measures, such as dining and rest rooms, but also facilities for medical examination and treatment.[1]

Transportation to school is also a very important problem for these children and should be included in the special school facilities. Even in its early stages, dystrophy causes difficulty in climbing steps. The children therefore find public transportation burdensome and oftentimes dangerous, and when the bus step is high, they need personal assistance in getting on and off.

Experience in cities that provide transportation for dystrophy patients has shown that various plans may be successfully followed. In San Francisco, for example, taxicabs are used; four or five children are carried in each cab, with minimal time in transit. Wheelchairs are not transported from home; instead, extra wheelchairs are available at the school for those children who need them. At the Spalding School in Chicago, a bus-loading platform is enclosed within the building. Children can walk directly into the buses, which also have space for wheelchairs. Special types of buses have been commercially developed for transporting severely handicapped children and are in use in several cities.

The cost for all these special transportation facilities is a substantial item in the education budget for handicapped children, and the annual cost may exceed $200 per child. Although this is a large sum, it covers an essential item, for children with muscular dystrophy, like others seriously handicapped, often cannot attend school at all unless transportation is provided.

For those children who cannot attend school, it is important that arrangements be made for classroom participation through the use of permanent telephonic connection. Commercial equipment has been developed which is well adapted for this purpose and is available at modest cost.[21] In a number of cases, service clubs have provided equipment in order that home-bound children might benefit from the classroom program.

VOCATIONAL TRAINING

In developing a training program that will help these patients make a proper choice of vocation, their muscular weakness is a factor that must be taken into consideration. Dystrophics are now filling a great variety of clerical and factory jobs which they may continue in, so long as their muscular power is adequate. Typing, for example, is a skill which many of them can utilize, although it may be necessary in time to provide them with electric typewriters. With the physical strain thus reduced, these patients may be able to continue typing with good competence for a number of years.

Many adults with dystrophy have never received adequate schooling in childhood, and have therefore been unable to achieve self-sufficiency. For this reason, it is important to eliminate existing age limits on schooling for the severely handicapped. If this were done, many patients who are not employable now can be trained for vocational usefulness and independence.[2]

Retraining of adults with dystrophy is important, as these individuals may some day find that they are no longer able to pursue their previous occupations because of the increasing loss of muscle power. Because the disease cannot be arrested, further loss of muscle strength may be anticipated, even after training. Experience with vocational rehabilitation during the past decade has demonstrated that considerable benefit can be achieved even in cases where previous skills can no longer be used. While many official programs have excluded patients with dystrophy solely because of their primary diagnosis, a few have recently been willing to accept patients for training.

RESEARCH NEEDS

Except for reports of psychological testing and a few studies of psychological and emotional factors associated with muscular dystrophy, very little specialized literature is available on the educational aspects of muscular dystrophy.[4,13,15,16,18,19] There is need for better understanding of the educational problems brought about by this disease. Experimentation with educational procedures is desirable in order to discover more suitable technics of assisting patients to benefit from existing and future opportunities. More studies are also needed of the psychological and emotional effects of a progressive disease on the patient and his family.

CURRENT OUTLOOK

Educational facilities for handicapped children are increasing and more financial support is becoming available for program development. Pressure from parents and educators has had a cumulatively valuable effect. Special schools in one area are providing the proof needed to establish schools in all areas. Experiments with residential schools and special boarding plans also provide a stimulus for imitation.

Considerable public support has attended the efforts to develop programs for muscular dystrophy patients. The stimulus for this interest has come from the Muscular Dystrophy Associations of America, Inc. Recognizing the obscure nature of the malady, this organization has dedicated itself to the stimulation of medical research in muscular dystrophy and allied neuromuscular disorders. At the same time, it has recognized the immediate needs of patients for current assistance with medical and other problems. It has attempted to meet these needs by initiating medical clinics at leading medical institutions in all parts of the country.

More recently, this organization has broadened its program to include educational, vocational and social aspects. As a result of these efforts, millions of Americans have consequently become aware of the disease, its nature and its social importance.[22]

Public interest, in turn, is having a salutary effect on official medical and educational agencies, who are re-examining their policies with regard to these patients. However, at present few children are participating in school programs. Thus far, we have seen mainly the sad results of cumulative neglect.

There is need for vigorous expansion of the special educational programs that have been established for only a handful of these individuals. We have seen the opportunities that are being provided in some areas through special schools. These opportunities must be increased in great number so that all dystrophics may be benefited. This is the challenge for a brighter future.

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SECTION V

CHAPTER V

THE TUBERCULOUS

THE TUBERCULOUS, BY GLADYS M. PARK

TUBERCULOSIS IN CHILDREN, BY EDITH M. LINCOLN

PSYCHOLOGICAL ASPECTS OF TUBERCULOSIS, BY ERIC D. WITTKOWER

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE TUBERCULOUS

GLADYS M. PARK

The conquest of tuberculosis, one of the oldest diseases known, appears to be within the realm of possibility. The advent of antimicrobial therapy, the use of the new drugs, has spectacularly reduced the general death rate from tuberculosis. There has been an even sharper reduction in tuberculosis among children. The death rate from tuberculosis in children under 15 has fallen more than 80% in the past twenty years. As tuberculosis in adults has lessened, the chances of infection of children has been greatly reduced, for tuberculosis is a familial disease and much of the infection of children takes place in the home.

Yet this disease still remains a public health problem of real magnitude, for although the deaths have dropped markedly, the new cases of tuberculosis have not decreased at the same tempo. Over 83,000 new cases were diagnosed in 1953. Continuous and alert control measures, intensified mass-x-raying (case-finding) surveys and tuberculin testing programs, and dogged research for still more effective drugs which will kill the tubercle bacilli in the human body without destroying sound lung and other body tissues surrounding the diseased areas, will be needed to deal the final blow.

HISTORY

Tuberculosis has always been one of the greatest scourges of mankind. It is one of the oldest diseases known. Traces of tuberculosis have been found in Egyptian mummies. Early Chinese writers wrote of it accurately, and Hippocrates described its symptoms in great detail. In 1882 the tubercle bacillus, the causative factor, was identified by Robert Koch. Sanatoria and hospitals sprang up in great numbers, usually in isolated areas far from cities. Climate was thought to be an important factor, and the mountains to have some special healing quality. The ratio of beds to annual deaths climbed until five beds per annual death was the goal. Today this trend is reversed, and early ambulation is the goal instead of months and years in bed. The practice of computing beds needed according to number of deaths is no longer used nor valid.

Tuberculosis still remains one of our greatest problems throughout the world. With the advent of the new antimicrobials, and new surgical techniques, hope is felt for the eventual control of this universal disease. There has already been a sharp reduction in deaths from tuberculosis in many parts of the world, notably our own. In 1900 tuberculosis was first in the list of causes of death in the United States. Today it is tenth. In 1900 the death rate was 202 per 100,000. Today it is 10. In children the drop in both incidence and deaths has been greater than in adults so that the emphasis has changed from open-air classes, day camps and day boats to regular classroom attendance for children with asymptomatic primary tuberculosis, and those with more serious forms of tuberculosis who have been discharged from hospitals with their disease under control, with continuous education advocated throughout most of the hospital stay.

The Nature of Tuberculosis

Definition and Etiology. Tuberculosis is a communicable disease caused by the tubercle bacillus. It is usually transmitted by direct infection from an individual with active tuberculous disease, and in the great majority of cases the bacilli are conveyed through droplet infection from coughs or sneezes and are inhaled into the lungs by the recipient. Handling contaminated articles used by active tuberculosis patients may also be a source of infection, the germs being carried from the hands to the mouth and into the intestinal tract. Tuberculosis may affect any part of the body, but it most often affects the lungs, pulmonary tuberculosis accounting for more than 90% of the incidence and deaths from this disease in this country.[1]

Types of Tuberculosis and their Symptoms. There are two types of tuberculosis, the primary infection and the reinfection type, the latter indicating a reinfection by tubercle bacilli of already sensitized tissues from the primary infection.

The primary infection takes place most often in childhood but can occur at any age when exposure to the tubercle bacillus takes place. The term 'childhood tuberculosis' formerly used to denote first infection with the tubercle bacillus has been discarded. 'Primary infection', now used, is a more accurate term indicating the process which follows directly upon the first implantation of tubercle bacilli in the body. Only a minority of persons who acquire a primary infection develop clinical disease, but in a few the primary infection may become progressive from the beginning, may not heal completely, or may lie dormant in the body for a long time, only to progress later. A healed primary infection does not confer protection in case of subsequent exposure. Approximately two-thirds of the population of the United States develop primary infection at some time in their lives, but fewer than one in a hundred have any further tuberculous disease.[2] A few in later years may develop tuberculosis of the lungs, or of the bones, joints, skin, kidneys or other organs; for even after the primary infection has subsided, live tubercle bacilli may remain in the primary focus and hilar glands.

The primary infection may run a benign course in children, and is usually non-communicable. Such children have no symptoms and should lead normal lives and attend regular classes in school. The primary infection is frequently discovered by the tuberculin test and the x-ray which follows a positive reaction. Symptoms, when present, are a low-grade fever in the evening, which may be present for a long time before its presence is noted; listlessness; a lack of desire to play; loss of appetite with resultant loss of weight; anemia; and pallor. It is very important for the teacher to know that a child who appears constantly fatigued, or listless, especially in one formerly active and alert, shows little interest in his classroom work, is lethargic and too tired to play with other children, may have symptoms indicating tuberculosis rather than wilful inattention to his lessons. Such a child should be reported to the school nurse. Any condition deviating from the normal, such as swollen glands, flushed cheeks, malaise, should be noted and reported as significant. Weight, or underweight, previously felt to be a determining factor in the development of tuberculosis, is no longer looked upon as such. The nutrition of the child rather than underweight is the factor to be considered. An overweight child can be mal-nourished.

Cough is seldom present, nor expectoration. For this reason primary tuberculosis is seldom contagious to others. The tuberculin test is of the greatest importance in the diagnosis of primary tuberculosis, particularly in a child who has had a negative reaction in the past. Careful search for the source of his infection, once a positive reaction is found, with separation from it as soon as possible, is important. X-ray and physical examinations, examinations of sputum, if any, or gastric washings are indicated, with other laboratory tests, to ascertain the status of the lungs. Often the entire course of the primary infection is run without any symptoms, and resolves, leaving only a few scars. However, any child showing a positive reaction to the tuberculin test must be kept under close medical observation and x-rayed more frequently than one having a negative reaction, for his body is harboring germs which are potential sources of danger for the future unless he is kept at optimum health level, with freedom from contact with open tuberculosis cases and absence of emotional strain, and with adequate nutrition and proper housing. This is particularly true for adolescent boys and girls.

The reinfection or post-primary type tuberculosis is a new infection in a person in whom a primary infection has healed. It is difficult to draw a sharp line between the primary and the reinfection type, the latter still being spoken of sometimes as 'adult type' tuberculosis. It may be the result of an exogenous infection, that is, a new exposure with new bacilli taken into the body; or an endogenous infection, that is, the breakdown of the primary focus discharging bacilli already in the body into other parts with resultant new foci of disease. In either type of lesion, primary or reinfection, spontaneous healing or spontaneous progression of disease may occur. The new invasion may affect various parts of the bodv. Some of these will be discussed briefly.

Chronic Pulmonary (lung) Tuberculosis. Chronic pulmonary tuberculosis, the most frequent form of reinfection tuberculosis, tends to progress slowly in children, with the period between the first infection and the development of clinical disease sometimes months or even years, although this is not universally true. Racial differences can affect it. The most frequent symptom in chronic pulmonary tuberculosis is fatigue due to the toxemia of the invading germs. In the early stages this may be the only symptom. If the tuberculosis is not discovered in this stage, the disease progresses, the fatigue and lassitude increase, and loss of appetite, loss of weight and slight fever may be present. Cough and expectoration, hoarseness, shortness of breath, digestive disturbances, night-sweats, and occasionally hemoptysis (hemorrhage from the lungs) may occur as the disease progresses. Seldom are all these symptoms present, but any of them may be a danger signal and should be enough to send the person to seek skilled medical advice. Tuberculosis is an individual disease, and seldom do two persons react to it in the same manner. Some with minimal or early disease feel and appear quite ill, while others with advanced or even far advanced disease may have few symptoms and not feel ill at all. Thus tuberculosis can reach the advanced stage without persons being aware of it.

Miliary Tuberculosis. Miliary and meningeal tuberculosis are encountered more frequently in children than in adults. Miliary tuberculosis is tuberculosis which has spread throughout the body by way of the bloodstream, developing tiny lesions in most of the organs of the body. It is one of the most serious forms of the disease and before the advent of antimicrobial therapy killed quickly, but recovery is now being effected by the drugs in many children. The symptoms vary greatly from child to child. Some may have complete absence of symptoms while others are so gravely ill they succumb to the disease within a few days. Unless treatment with drugs can be instigated immediately and pursued with vigor, the chances for survival are poor.

Tuberculous Meningitis. Tuberculous meningitis is an infection of the covering of the meninges of the brain. This is an even more serious type of tuberculosis, but is gradually yielding to drug therapy. From forty to seventy-five percent of persons who develop tuberculous meningitis now recover with prompt medical treatment and drug therapy vigorously pursued, whereas formerly this form of tuberculosis was one hundred percent fatal. The chance for survival is altered by age. Children over three have a better prognosis than young adults and much better than individuals over 55.[3] Symptoms vary according to age. In infants, high fever, restlessness, convulsions, and diarrhea; in children, loss of appetite, malaise, rapid pulse, fever; in adults, gastro-intestinal symptoms, vomiting, headache, and constipation. As the disease progresses the patient has acute pain in the crown of the head, vomiting and thirst. In the later stages, the pulse becomes slow and irregular, the child becomes drowsy and comatose and is hard to awaken.[4] These were the classic symptoms encountered in the pre-antimicrobial period. All are lessened with drug therapy, if the condition is diagnosed early enough and combined drug therapy started before the disease has had chance to progress.

Bovine Tuberculosis. This type of tuberculosis, once a serious disease which caused most of the tuberculosis of the bones and joints, has been virtually eradicated in the United States through a rigorous program of tuberculin testing of cattle, with the slaughtering of animals with tuberculosis, and the pasteurization of milk. In other countries where such strict controls do not exist, the incidence of bone and joint tuberculosis is much higher.

Other Forms of Tuberculosis. Tuberculosis of the skin, lymph glands, kidneys, intestines, and other parts of the body are all being brought under control by the new antimicrobials.

INCIDENCE

Morbidity. For several years the number of active tuberculosis cases in the United States has been estimated to be approximately 500,000, but a carfeul study of case-finding surveys of the past two or three years has proved this estimate to be too high. 400,000 is a more realistic figure. Of this number only about 250,000 are known to health departments. The other 150,000 include those who are not aware they have tuberculosis or those under medical supervision but undiagnosed or not reported. Again on the basis of mass x-raying findings, there are known to be approximately seven inactive cases of tuberculosis for every thousand adults. This would make the total number of inactive cases throughout the United States about 800,000. Thus 1,200,000 Americans need some medical care or supervision for active or inactive tuberculosis; many of them are potential spreaders of disease.[5] How many of these are children is hard to determine, as few figures are available for this age group.

Mortality. The death rate at all ages from tuberculosis was 40 per 100,000 population in 1945. In 1953, only eight years later, it had dropped to 12.3 per 100,000 population, and is still declining. The estimated death rate for 1954 for the United States is 10 per 100,000 population, in Denmark 10, in Canada 12, Sweden 15, England and Wales 20, France 37, and Puerto Rico 47 per 100,000 population.[6]

Significant Age Changes. There has been a marked shift in the age at which people become ill with tuberculosis. For three years we have been citing the ages 15 to 35 as those of greatest danger from this disease. In 1933 pulmonary tuberculosis *was* a disease of young people. Three-fourths of all tuberculosis occurred in individuals under 45 years of age. However, by 1952, 44 percent of the reported cases were over 45 years of age, and 63 percent of all new cases were men. This shift in the age distribution is significant for tuberculosis formerly fell in the years of highest productivity in men and in childbearing years in women. Now more than half of all the deaths from tuberculosis in white males in the United States occur after age 55, compared with only about 25 percent in 1933. Among white females about half the deaths now occur at ages 45 and over, compared with one-third in 1933. Not only are older patients the chief victims of this disease, but they are also the major source of its spread. facts supported by clinical evidence.[7]

TABLE I

Tuberculosis Morbidity and Mortality Rates In
Selected Age Groups* United States, 1952[8]

Age Group	New Case Rate*	Death Rate*
15-24	53	6
25-44	69	14
44-64	84	30
65 and over	82	49

*Per 100,000 population.

In the non-white population the figures are much higher. Both new case rates and death rates are about three times as high for the non-white population as for the white, with the deaths and new case rates higher for men than for women in both white and non-white groups.

TABLE II

Tuberculosis Morbidity and Mortality Rates
By Race and Sex, United States, 1952[9]

Race, Sex	New Case Rate*	Death Rate*
White:	58	18
Male	31	7
Female	—	—
Total	45	13
Non-white:	173	54
Male	119	41
Female	—	—
Total	145	42

*Per 100,000 population.

Incidence of Tuberculosis in Children. Worldwide statistics for children with tuberculosis are not available, nor is it even possible to obtain the number in the United States. Figures are available for selected areas, of children reported to the health authorities, but not for the country as a whole; therefore, the magnitude of the problem is hard to determine. It still remains a very great problem in some countries such as China, India, Alaska, Korea, and among our American Indians.

The years from five to ten are years of great resistance to tuberculosis and comparative safety from this disease. The incidence is still low up to age 15. With the beginning of puberty, there is a steady rise. Infants and children with tuberculosis do not constitute a serious danger to others. Active pulmonary tuberculosis is rare in this age group, and tubercle bacilli are almost never recovered from the sputum, although they can occasionally be found by culture of the gastric contents. In the period 15 to 30, women have higher incidence and death rates than men; but after the age of 30, the disease is much commoner in men and continues to be from that age on.[9]

DIAGNOSTIC PROCEDURES

Tuberculin Testing, X-ray and Sputum Testing. Tuberculin testing is used both as a diagnostic procedure and as an indication of the extent of significant infection in any community. As mortality, and to a lesser degree morbidity rates decrease, the importance of the tuberculin test increases as a diagnostic factor. The best indication of control of tuberculosis is the degree to which infection is being prevented, for without infection there can be no disease. This can be measured by the tuberculin reaction in samplings of the population. A recent study of high school students in New York City[10] showed that 13.5 percent reacted positively to the tuberculin test. By contrast in 1938, 15 years before, almost 50 percent in the same age group were positive reactors. Similar reductions have occurred at other ages. In the University of Pennsylvania, where since 1931 the Mantoux test has been administered to male students entering the undergraduate school, the percentage of positive reactors dropped from 51 to 14. Amongst medical students entering the same school, the positive reactors dropped from 71 percent in 1938 to 20 percent in 1953.[11] These lowered rates mean that infection of younger individuals is being prevented. There is also evidence to show that the frequency of infection has been postponed, so that a smaller proportion of initial infections are occurring in childhood, and a larger proportion in adult life, than formerly happened.

Mantoux and Patch Tests. The tuberculin test is usually administered by the Mantoux or the Patch test methods. The Mantoux is more accurate than the Von Pirquet, the scratch test formerly used extensively, or the Patch test, as the amount of Old Tuberculin used can be measured more accurately. For this reason, a larger number of positive reactors are obtained with the Mantoux test. The solution is injected into the superficial layer of the skin of the forearm and read forty-eight to seventy-two hours later.

The Patch test is administered by attaching a small square of filter paper saturated with a solution of Old Tuberculin (an extract of the products of the tubercle bacilli), to the forearm or back with adhesive. The patch is removed in seventy-two or ninety-six hours after application. A positive reaction to either test is one that shows redness and induration (raised area) around the site of the injection or the patch. If no redness or induration are apparent, the reaction is negative. The physician may wish to re-test with a stronger solution of P.P.D. (Purified Protein Derivative), the solution of Old Tuberculin advocated by the Committee on Diagnostic Standards of the National Tuberculosis Association.[12]

A positive tuberculin test indicates that the child has taken into his body some tubercle bacilli at some time in his lifetime but does not mean that he has active tuberculosis. It indicates the need for x-ray of the lungs and further clinical study. If the x-ray shows no evidence of disease, or a healed primary lesion, the child should not be excluded from school but should be allowed to engage in regular classroom activities as advised by his doctor. Children with x-ray evidence of a healed primary infection should be followed closely, with periodic examinations and x-ray at intervals prescribed by the physician. If the x-ray shows evidence of changes in the lungs or hilar lymph glands, further diagnostic procedures, examination of the sputum or gastric washings, and other laboratory tests are indicated with exclusion from school, hospitalization, or home care under close medical supervision, if tubercle bacilli are found.

Bacillus Calmette-Guerin (BCG). Because of the controversy today over this form of vaccination, a word must be said about BCG. This is the vaccine Dr. Calmette and his associate, Dr. Guerin developed while working in the Pasteur Institute in Paris. Made from a live but very weakened strain of bovine tubercle bacillus, the vaccine was first used on humans in 1921 and has been used extensively in some of the Scandinavian countries, particularly Norway, where it has been compulsory for a number of years. It is given to persons who have a negative skin reaction to the tuberculin test, that is, those who have never been infected with tubercle bacilli and therefore have not built up their own immunity. In this country, BCG has been used mainly to vaccinate those in close contact with active tuberculosis cases, — for example, doctors, nurses, teachers in tuberculosis hospitals in contact with tuberculous children, and children in contact with active tuberculous adults in the home.

BCG has been administered also to groups in which there is a very high incidence of tuberculosis, such as American Indians and Negroes. The World Health Organization has carried on an extensive program of BCG vaccination in many countries throughout the world where the incidence of tuberculosis is exceedingly high. Approximately 50 million people all over the world have been vaccinated with BCG, yet today the question of its usefulness remains one of the most controversial issues in the field of preventive medicine. Myers[13] feels it to be an unnecessary procedure stating "there are areas where tuberculosis has been completely eradicated from school children." In the United States, although BCG vaccination has been used to a limited degree and only with selected groups, the general improvement in morbidity and mortality rates from tuberculosis has been as substantial as in some countries where compulsory vaccination has been practiced for years. Improvement in environmental conditions, freedom from the ravages of war, better nutrition, prevention of contagious and debilitating diseases, higher standards of living, personal hygiene, and better housing have all played their part. Children are better cared for, healthier, and have higher resistance to disease. Better case finding, earlier recognition of symptoms, and spread of education regarding tuberculosis through radio, television and integration in the school curriculum have been valuable aids in bringing about this improvement.

Treatment of Tuberculosis

Bed Rest. Bed rest has been the basic treatment for tuberculosis ever since Dettweiler founded his sanatorium, with rest as the keystone, in 1876; but the effectiveness of the new drugs has caused many physicians to question the necessity or even advisability of prolonged bed rest today. Many controlled studies have been started to investigate this phase of treatment but they will require a long period before any definite conclusions can be drawn. Until these studies are completed, the long established regime of bed rest is continuing, in order to reduce the work of the affected lungs and give them their maximum chance to heal. An individual on bed rest breathes about one-third less volume of air than one who is standing, and less than half as much as one who is walking.[14] Aside from its effect on the lungs, bed rest gives the body as a whole an opportunity to strengthen its powers of resistance against the disease.

Bed rest, especially for children, can best be carried out in a hospital or sanatorium, where the facilities are keyed to maximum rest with good nursing and medical care always at hand. Unless the home conditions can approximate those of the hospital and an equally effective program of rest can be carried out, the hospital should be used. Free hospitalization for children and adults is available in this and most progressive countries, recognizing that tuberculosis is a contagious disease and isolation facilities must be provided as part of community protection. The modern tuberculosis hospital is often an integral part of a large medical center, giving the patients ready access to specialists in other medical fields for consultation and study when needed. Since climate is no longer a factor to be considered in tuberculosis, such medical centers, usually situated in the midst of urban centers, afford better opportunities for families to visit frequently, a most important factor in the recovery process, particularly with children.

Antimicrobial Therapy. The treatment of tuberculosis has undergone a radical change in the past ten years. Since the advent of antimicrobial therapy (a term now used in preference to chemotherapy) about 1945, the length of stay in tuberculosis hospitals has been reduced, the care of tuberculosis patients in their homes increased, and conditions such as tuberculous meningitis and miliary tuberculosis brought under control. Chest surgery has played an increasingly important role, with many patients controlling their disease with drug therapy sufficiently to allow extensive surgery with excellent results. The drugs most in use at this time are streptomycin or dihydrostreptomycin, PAS (Para-aminosalicylic acid) and isoniazid.

Streptomycin, a soil mold discovered by Waksman in 1944, is seldom administered alone, as the tubercle bacilli become resistant to it in a comparatively short time and learn to live in the presence of large amounts of it. The addition of PAS or isoniazid slows down this drug resistance and makes it possible to administer treatment over a much longer period of time. These drugs do not kill the tubercle bacillus in the body as they do in the test tube, but suppress its growth and slow down the rapid multiplication of bacilli within the lungs. Conversion of sputum, from positive to negative, occurs more rapidly with the administration of drugs; thus, shorter periods of hospital care are required, releasing beds for the more acute and advanced cases. In New York City, a program of treatment of tuberculosis patients with drugs in their homes is being tried. About 3,000 patients are participating in this program, an experiment which is being watched with great interest. Set up originally when beds in hospitals were scarce, for patients to start on drug therapy without delay while they were waiting for admission, for patients who had been discharged from hospitals with recommendations to continue antimicrobial therapy, and for those who refused hospital care, it is now used mainly for the last two types of patients, for the shorter hospital stays have eliminated the long waiting lists. In most hospitals today the use of drugs has become routine treatment immediately upon hospilization for all patients with active and potentially progressive tuberculosis. Treatment for long periods with bed rest has given way to the more active drug therapy regime administered for a period of six to nine months, with many patients benefiting from much longer periods of 12 to 18 months or more, depending on the type of tuberculosis under treatment.[15]

In acute miliary and tuberculous meningitis in children, streptomycin, PAS, and more recently isoniazid are used, — in some cases, a combination of all three. The earlier treatment can be instituted and the longer it can be carried on the better the results. Children tolerate the drugs well, better than adults and with fewer toxic manifestations.

Tuberculosis of other parts of the body, — bone, joint, cervical glands, etc., — yield well to drug therapy in conjunction with rest. The treatment of children with primary tuberculosis with antibiotics, however, is still a matter of controversy. Most primary tuberculosis runs a benign course. Treating every child with drugs in this primary stage may deprive him of them at some later date when he may need them more should active tuberculosis occur; for if the bacilli develop drug resistance, it would render them ineffective later.

Surgical Procedures. Bed rest alone, or with antimicrobial therapy, may not be sufficient to control the disease. Other measures designed specifically to put the lung at greater rest may be necessary. The collapse procedures, pneumothorax and pneumoperitoneum, are minor surgical procedures but carried out under strict aseptic techniques. They are designed to curtail the motion of the lung by compressing it through the introduction of a measured amount of air into the pleural space surrounding the lung (pneumothorax), or into the abdominal cavity (pneumoperitoneum), causing elevation of the diaphragm, the large muscle which divides the abdomen from the chest cavity, by pushing the lung upwards. The latter collapse method is supplanting pneumothorax, as it relaxes both lungs to some extent and causes fewer complications.

Major surgical procedures may be indicated when large cavities, extensive or progressive disease make more stringent measures necessary. The role of surgery, in addition to affording a greater degree of rest of the lung, is to remove those tuberculous lesions which cannot heal completely even with the aid of drugs, and to remove the portions of the lung already destroyed by the tuberculous disease. Pulmonary resection or surgical excision of the portions of the lung with persistent tuberculous disease is the leading surgical measure in many tuberculosis hospitals today. Drug therapy almost always precedes surgical intervention and is given routinely following it. Thoracoplasty (removal of ribs over the diseased area allowing the chest walls to fall in, compressing the lung, relaxing and resting it) lobectomy (removal of one lobe of the lung which has extensive cavitation or disease) and pneumonectomy (removal of an entire lung when disease has spread throughout it), are other surgical procedures in common usage. After long courses of treatment with drugs, the disease in the lung frequently becomes somewhat localized; a surgical procedure, wedge resection, can cut out this section if it is small and near the surface of the lung.[16] Surgery is one more weapon in the battle to bring tuberculosis under control. It cannot be used as a substitute for bed rest, drug therapy, or good nutritious food, but used selectively it can save many lives and restore many patients, young and old, to lives of usefulness and security.

PREVENTION

The prevention of tuberculosis depends largely on good personal hygiene, optimum standards of cleanliness, nutrition, and good family adjustment. These are basic, although many other factors have a bearing. Proper treatment of the patient is itself a large part of prevention, because it removes the source of contagion from susceptible persons. In well organized communities, hospital treatment of the patient is supplemented by supervision and education of the family at home.

Certain occupational groups present special problems in the prevention of tuberculosis. One is the personnel of agencies caring for children. Domestic servants and baby-sitters are possible sources of infection for both children and adults. There is also some risk of exposure to tuberculosis from beauticians and barbers, particularly when their clientele is relatively fixed. Doctors, medical students, nurses, dentists, technicians, and other hospital personnel face the problem of exposure. Every measure possible must be taken to protect them, by periodic x-rays and routine chest examinations of all personnel and x-rays of patients at the point of admission to the hospital. The risk of infection is proportional to the amount of exposure and depends on the closeness of contact, the duration of the exposure and the willingness of the sick person to exercise care in avoiding coughing or sneezing without covering his mouth and nose carefully, burning or boiling contaminated articles he has handled, washing in scalding water eating utensils which have come in contact with his mouth, and proper collection and disposal of sputum by burning where possible or adequate disinfection before disposal in other ways.[17]

In the past, preventoria have been used as a preventive measure for children from tuberculosis families who had a positive reaction to the tuberculin test. Today, when the tuberculous patient himself is often in the home, education in the precautionary measures to be taken must be intensified to protect the whole family. The preventorium still has a role to play. It serves its purpose when the home situation is unsatisfactory or when an acute social situation forces a child from the home. The word 'preventorium' is, however, a misnomer. The type of care provided does not prevent tuberculosis as much as provide separation from contact with active tuberculosis cases and inculcate healthful attitudes in the child as a protective measure against later illness. Education of the family in the child's needs must go on simultaneously if the preventorium experience is to have any real or lasting value.

The same may be said of the special summer camps. The child is there too short a period to have any real value in affecting the tuberculous process. Frampton and Rowell in *Education of the Handicapped*, quoting Hill, stated as far back as 1940, "It is not advisable to spend large sums to maintain primary cases in sanatoria, preventoria, special schools, fresh-air classes or summer camps. He prefers to use the money for tuberculin and x-ray surveys, followed when, as, and if necessary with a program in the child's home."[18] This is as valid today as when it was written and is in keeping with present trends. Segregation of tuberculous children in classrooms is becoming outmoded. Relief from the stress of competition with non-physically handicapped children must be weighed against the possible psychological harm by segregation into tuberculosis groups. An understanding and realistic approach to this part of the school program is very important.

The importance of the teacher having some knowledge of tuberculosis is self-evident. The routine chest x-raying of teachers and other school personnel has become an accepted fact. Without doubt this has had a bearing on the marked reduction in tuberculosis in school children, since sources of infection formerly unobserved have been removed. It has served as an educational medium for the school staffs, too. All teachers active in the hospital or home-teaching programs are required to show a positive tuberculin reaction, a safety factor for those in close contact with tuberculous children.

PROBLEMS IN THE EDUCATION AND CARE OF THE TUBERCULOUS

Behavior of Persons with Tuberculosis. Few scientific studies have been undertaken from which accurate data can be obtained on this phase of tuberculosis. Those studies which have been done indicate there is no common behavior pattern in the tuberculous child or adult. Kramer stated that:

> the psychology of the tuberculous child does not differ essentially from that of children who are not tuberculous. Reactions common to other types of physical disabilities in which physical activities must be drastically reduced or completely curtailed, are characteristic of the tuberculous child. The development of psychopathological symptoms does not usually rest with the morbid process itself but with the attitude the child learns to take toward it . . . over-protection and over-indulgence of the tuberculous child will produce emotional and mental immaturity which is especially harmful to a young individual who is confronted with the danger of physical handicap and a lack of communal socialization.[19]

Wittkower[20] has nothing to say of the behavior pattern of children although in his opinion a special personality type in tuberculosis does not exist. He ruminates on the fact that so many persons in civilized communities come into contact with tuberculosis, from persons with undiagnosed tuberculosis, yet only a few develop the disease. He believes only through thorough investigation and psychiatric research will we learn the reasons. Hartz states:

> the whole topic of human relationship is in need of study and consideration in relation to the problem of control of tuberculosis. Patients all arrive at the sanitorium with some degree of emotional disturbance. In terms of management, pulmonary tuberculosis can be as much a disease of the personality as it is of the lungs. These factors constitute real reasons for careful education and psychological planning to meet the need of the tuberculosis patient child or adult.[21]

Banister[22] writes:

> in the tuberculous child the type of psychological reaction depends to a great extent on the attitudes and treatment he receives from adults. Lack of physical activity curtails the emotional outlets, while adult over-protection and excessive parental solicitude create emotional problems which are not caused directly by the disease but are important even though accidental byproducts.[22]

There seems to be no relationship between intelligence and tuberculosis. Page[23] found unjustified the notions that tuberculosis patients possessed a special 'character', but on the basis of his findings that tuberculosis patients in general were psychologically distressed he suggested psychotherapy as a regular part of institutional treatment. He also advised training in mental hygiene for the medical, nursing, and social work staffs. This has long been recognized as a need and recommended strongly by workers in the health field and other medical groups.

Bakwin reporting on a study of twenty-five children in Bellevue Hospital studied by Dubo[24] stated that:

> a child with active tuberculosis shows specific psychologic reactions to his disease. The behavior is characterized by diffuse motor activity, aggressive outbursts, and an inability to cooperate in the most important aspects of treatment. Though they generally accept without complaint procedures such as injections, pneumothorax, and even major operations, they resist bed rest and limitation of activity vigorously. This behavior stems from intense anxiety and deep preoccupations. Much of the thinking of the child is concerned with death. This motif is prominent in his conversation, his dreams, his fantasies, and his drawings. Primary tuberculosis, even when serious is often symptomless. To the child his disease is an abstract concept. The insidiousness of tuberculosis makes it all the more frightening and threatening. The natural response to danger is increased physical activity, but the child with tuberculosis is expected to be quiet.

Dubo suggested the following:

1. There should be an opportunity on the ward for the development of family constellations with consistent parent substitutes. This is especially important for the younger age group, and particularly the infants.

2. Adequate recreational facilities and opportunities for creative activity should be available to give the child a feeling of social participation.

3. Group discussion, organized along the lines of discussion group therapy, led by a therapist, will give the children the information about their disease which they need and, at the same time, will allow opportunity for airing and expressing their worries and anxieties.

4. Most important is that the child have the opportunity for positive identification with the adults about him.

Education. In primary tuberculosis the child needs to be hospitalized only during the acute stage (fever, malaise). After this period has passed, there is no evidence that further prolonged rest materially alters the subsequent prognosis, and the child should be returned quickly to normal routine. Continued, skilled medical supervision is essential, but the breaking up of home life and interference with education may be more harmful to the child's normal development than any benefits to be gained from prolonged sanatorium or hospital care. The degree of disease will control his school program and whether it must be carried on in a hospital, in the home, with a teacher assigned by the Board of Education, or in a health conservation or regular class. Even the child with chronic pulmonary tuberculosis should not be left without an education, unless he is gravely ill.[25] Major restriction on the activities of most children with uncomplicated pulmonary tuberculosis is unwarranted, and thus segregation unnecessary. Those who have recovered from tuberculosis or show only a positive tuberculin reaction should be treated like normal children and accepted in classrooms, in child-care institutions when necessary, or in the homes without qualification.[17] It is the province of the physician in the local Department of Health assigned the task of deciding when, where, and how much the child can study.

The child with reinfection type disease seldom belongs in the classroom; he should be under active care in the hospital until the acute stage is past. Tuberculosis is a chronic disease, — in contradistinction to an acute disease of short duration, — necessitating many months of treatment in a hospital, sanatorium, or more recently in the home, if the home conditions are satisfactory and the child's mother or mother-substitute can give adequate nursing care and administer drug therapy. During these months of enforced rest, whether in an institution or at home, the child's education should be carried on as soon as allowed by the physician. Each child will be evaluated individually and prescribed for according to his condition.

The anxiety engendered by falling behind in his studies may militate against recovery and thus prolong the illness and even affect the ultimate prognosis. Because of the long period of inactivity during the acute stage of the illness, it may be necessary to revive the child's interest in his studies. He may wish to prolong the gratifications and attention he received while acutely ill and may relinquish them reluctantly. Stimulating his interest and arousing his desire to continue his educational studies may be a major task for the teacher, and a very gratifying one when accomplished. Extension of teaching programs both in the hospital and the homes to tuberculosis children ready to participate in them should be aided whenever possible through the medium of radio, television or any other audio-visual aids possible.

In a child with miliary tuberculosis, the ability to continue schooling will be an individual matter based on acuteness of illness and progress under drug therapy, and must be decided by the attending physician on an individual basis. As with all children with chronic illness, starting his school program will be interpreted by the child as a sign of progress and will be an incentive to recovery.

In meningeal tuberculosis, as in miliary tuberculosis, the child's school program will depend on the progress and prognosis and must be mapped out by the physician in charge of the child. Continuation of school studies, even for children on bed rest, as soon as the acute stage of the disease is past, is of great importance. No school child should be left without schooling, unless he is acutely ill. Long periods in hospitals are sometimes necessary to control and arrest the disease. If a child of school age is left for many months without schooling, his future is jeopardized. He may not be able to compete with others or complete his schooling, and will therefore be handicapped scholastically, emotionally and vocationally. The degree of disease and the stage of recovery will control the timing and amount of his school program, but a teacher should be available once a program has been authorized by the physician in the Department of Health controlling this and the school doctor to whom he assigns the child. The major responsibility for appraisal and recommendation for the education schedule is the doctor's role, but he is responsible for interpreting his findings to the nurse, who in turn can interpret them to the teacher. Team work among these three disciplines is very important. The school doctor may not always be able to follow the child as closely as he would desire. The nurse must often act as coordinator and, with the teacher, guard against too active a curriculum or play activity. On the other hand, too guarded a schedule with over protection on the part of the teacher or parent can be crippling.

The nurse and the teacher are responsible for carrying out the doctor's recommendations. Close contact between these two disciplines is necessary, for the nurse can interpret medical findings in simple terms and acquaint the teacher with the home situation. Thus a better understanding of the limiting social factors in the child's environment may be compensated for by more assistance with his school adjustment, more personal attention, more praise for achievement, and aid in the amalgamation of the child into his social setting in the classroom. For the child who has had tuberculosis is often rejected by his classmates, which may result in withdrawal or over-aggressiveness. The doctor, teacher, and nurse working together to ameliorate these overt personality traits have a challenging but rewarding experience when the readjustment of what are frequently only the temporary manifestations of his past illness, subside.

Scheduling of periodic x-rays for all the child's contacts devolves upon the nurse. Once they are linked up with a clinic, she may turn her attention to other phases of the child's welfare, requesting special diet allowances for the child and the family members under twenty-one in those dependent on the Department of Welfare for financial assistance, special clothing allowances to protect them from inclement or cold weather, re-housing for those living in sub-standard or over-crowded living quarters, and attention to other health needs of the child and his family. Dental care, eye examinations, and ear, nose and throat examinations are sometimes indicated. Frequent visits to the home to discuss the child's welfare with the parents and to elicit interest in his school work will be most helpful. These are all prime factors in making the child's readjustment to his school experience a satisfying one.

SUMMARY

The tuberculous child is less of a problem than he was twenty or even ten years ago. The changing age periods in which tuberculosis is found in adults has affected the incidence rate in children. Tuberculosis has become a disease of older men who are likely to have fewer household members and less frequently young children under ten years of age. A study of the age relationship of cases of pulmonary tuberculosis[26] in New York City shows that between the years 1937 and 1950 the proportion of new cases and deaths from pulmonary tuberculosis occurring in persons 45 and over doubled. More than 65% of those who succumbed were 45 years and over and 85% of this number were men. Also, half of the newly reported cases of pulmonary tuberculosis were found in persons 45 and over, with 36% of all new cases men. During the same period a sharp decline in the percentage of children reacting to the tuberculin test was noted, and the mortality from all forms of tuberculosis in children under ten reached an all-time low.

The major factors given in Robins' study as being responsible for this reduction were the decrease in tuberculous infection in the community with fewer communicable cases of tuberculosis, their more effective isolation, and the increased resistance of exposed individuals, resulting from improved standards of living. But the study showed that individuals in the age groups 10 to 34 form a significantly greater part of the household of older patients, and that there is an increased risk in exposure to tuberculosis of this group; for having escaped contact with the tubercle bacillus in childhood, they are more apt to encounter it for the first time; this might account for the sharp rise in incidence of tuberculosis among adolescents and young men and women.

Thus, while the child in the primary grades may not constitute as much of a problem, the young tuberculous boy or girl of high school age for whom less provision for formal education seems to be made in hospitals and in the schools may need to be the focus for the future.

The child under ten, who appears to have a high degree of immunity to tuberculosis is not a problem. In a city the size of New York, with a population of over 8,000,000, only fifty children are on home instruction and the number in health conservation classes is at a minimum, while the number of those receiving instruction in hospitals is equally small. There are only about 450 beds at present assigned to children in the tuberculosis hospitals, and they are not all filled. The problem centers around children with the more serious, formerly fatal types of tuberculosis, who are now being saved but with handicaps due to prolonged hospital stays, sequelae of drug therapy, and slow return to normal. These children need more attention than the child hospitalized for a short period during the acute stage of a primary infection.

The problem for adults appears to be not so much a medical one as a rehabilitation one. For children of school age, the problem is one of sufficient educational personnel and skilled planning to ensure continuity of schooling during his illness, — except during the acute phase when he may be too ill to study, — without the time-lag which exists when he is hospitalized, and again when he returns home, which can be so destructive of morale, create behavior problems, and militate against recovery physically and emotionally, and in preparing him for adaptation back into a competitive vocational setting after his recovery. This is especially true of adolescent patients.

The emphasis has changed from hospitalization over long periods of time to shorter hospital stays for education of the patient, induction of drug therapy, surgery if indicated, and then discharge to home care with continued close medical observation, examination, and treatment in an outpatient clinic. This calls for wider community education to overcome the fear, apprehension, and misinformation about this program, and intelligent acceptance of it.

Increased emphasis is being placed on early detection as the first step in breaking the chain of infection through stepped up mass x-raying (case-finding) programs, x-raying of all hospital admissions both in-patients, and out-patients at the point of admission (a rich source of new and undiagnosed tuberculosis cases) and an intensive educational campaign to stimulate voluntary yearly x-raying of apparently healthy persons. The annual total cost of tuberculosis control in the United States is calculated as $350,000,000, exclusive of construction expenses and the cost of training personnel. This includes the sum spent on hospitalization, which is estimated at $200,000, 000 a year, or more than half the cost of the whole tuberculosis program. The average cost of one case of tuberculosis is about $15,000.[27]

Much, therefore, still remains to be done before tuberculosis is finally conquered, but the present reduction of tuberculosis in children is a gratifying and hopeful sign. This is a period of questioning and change. The uncertainty about the status of bed rest and of the value of BCG, and the recognition of the value of psychiatrically oriented staffs better able to help tuberculosis patients work out their problems and reactions to this chronic disease, are indications that interest is swinging from the laboratory to the patient. Intensive research is being carried on in many phases of tuberculosis, but more patient-centered studies are being reported. With the addition of the new drugs, the task should be greatly simplified. The fact is that with every step of advancement, new problems arise. Many more patients are suitable for surgery, which necessitates careful selection of drugs, determination of the type and timing of surgery, and consideration of duration of post-operative drug therapy. While the drugs are useful agents effective in inhibiting the growth of the tubercle bacillus, they fall far short of the cure of the disease.

Recognition of tuberculosis as a social problem is greater. Dubos[28] has stated "Tuberculosis is a social problem involving many factors other than the tubercle bacillus. It will be mastered only if society can be perfectly fitted to human needs, limitations and urges."

As long ago as 1937 Frost made a statement which is still tenable.

> It is a fair inference that in this country (United States) we have reached the stage at which the biological balance is against the survival of the tubercle bacillus, for year by year, the mortality is decreasing. . . . We do not have equally direct statistical evidence of a proportionate decrease in the prevalence of infective cases. . . Under present conditions of human resistance and environment the tubercle bacillus is losing ground and the eventual eradication of tuberculosis requires only that the present balance against it be maintained.[29]

Since these words were written, several new weapons have been developed, — antimicrobial therapy, better techniques in surgery, and improved photo-fluorographic x-ray equipment for mass-x-raying surveys, — which should serve to increase the hope of ultimate eradication of this communicable and destructive disease.

RECOMMENDATIONS

1. The time-lag between the authorization for resumption of schoolwork and the child's assignment to a class or arrangements for a home instructor should be reduced. Tuberculosis and the treatment of tuberculosis are in a state of flux. As medical thinking has had to be revised due to the enormously improved situation, so the viewpoint regarding educational aspects has had to be revised. The emphasis placed by the hospital personnel, particularly the medical, nursing, social work and rehabilitation staffs, on the education of the child at the earliest moment in his recovery process points up their estimation of its importance in his ultimate prognosis. It has become as much a part of treatment as bed rest or medical or surgical care. Even a child who has been acutely ill will benefit by a return to his school

program as early as possible. To fall behind in his grades is an anxiety-provoking experience and militates against his adjustment in the hospital and the recovery process.

2. There should be increased use of audio-visual aids and any other devices which will assist the child to learn with the expenditure of the least physical energy, particularly those children on strict or modified bed rest, whether they are in home or hospital. The extension of radio and television instruction wherever possible and feasible and the maximum use of audio-visual aids are urged. Unfortunately tuberculous children often come from poor home situations with marginal incomes, often on relief. For such children, every assistance the community affords should be brought into play to assist them to take advantage of the extension programs provided by the school. Since the tendency today is to treat tuberculous children in the home, the school must be extended into the home.

3. Study of tuberculosis should be included in the curriculum, wherever it can best be integrated, from elementary school through teacher training. This is already being done in some schools. Only through intensified education will the fear of tuberculosis be dissipated. Even when the disease is well-arrested the child or adult may be rejected by the community.

4. Young patients should be included in rehabilitation programs in hospitals, schools, and the home. Rehabilitation, with its many ramifications, will not be discussed in detail here. Rehabilitation has been defined as that process of development through which a handicapped person may attain the maximum physical, mental, social, educational and economic usefulness of which he is capable. For those who have had long periods of hospitalization, it bridges the gap between the hospital or sanatorium and the community into which the child or adult must eventually be integrated.

5. There should be mental hygiene training for medical, nursing, and social work staffs dealing with tuberculous children. The need for psychiatrically oriented personnel has been pointed out by Page.[23] This has been a need recognized for a long time because of the emotional disturbances the breakup of family life creates when a member contracts tuberculosis and has to be hospitalized, but there has been little supplementation of hospital staffs to implement the recommendations, mainly because of budget limitations. The problems following upon diagnosis are apt to be more acute when a child or young teen age boy or girl is the patient. Their own anxieties create reciprocal ones in their family who fear for their future. Where psychiatrists and psychologists have been added to the hospital staffs on a resident or consultation basis to assist the rehabilitation and other hospital personnel, marked improvement in patient morale has resulted.

Schools and colleges have been called on for these supplementary services such as tutoring, voluntary informal recreational activities, and assisting the staff to enrich and vitalize the total rehabilitation program of hospitalized tuberculous children.

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TUBERCULOSIS IN CHILDREN*

EDITH M. LINCOLN

Chemotherapy has been very useful in reducing the death rate from first infection, often called primary tuberculosis, in children. In many sections of the United States the death rate in children has always been low. Because good control of tuberculosis in adults has been established, there are relatively few active cases and consequently, few children are infected.

The effect of chemotherapy can best be judged in areas where formerly the death rate in children was high. Such a situation is found in the chest clinic of the Children's Medical Service of Bellevue Hospital, a large municipal hospital in New York City. Patients on this service come mainly from families of very low economic level, frequently receiving public assistance, and living in crowded conditions.

Twenty years ago one of every five children admitted to the tuberculosis ward of Bellevue Hospital died of the disease, usually within a year. Most of these children were first diagnosed in the hospital because a tuberculin test was part of the examination on admission. Of those who were admitted with the diagnosis of tuberculosis the great majority had originally been found by contact examinations or by tuberculin tests. The death rate in tuberculous children was unchanged until streptomycin became available late in 1946.

In tuberculous meningitis, which caused 60 per cent of the deaths from primary tuberculosis, the case fatality rate fell to 32 per cent between 1947 and 1951 after chemotherapy was employed. When isonicotinic acid derivatives were introduced in 1952, the case fatality rate was lowered to about 12 per cent. Before chemotherapy tuberculous meningitis was 100 per cent fatal.

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The use of antimicrobial therapy in other serious forms of tuberculosis has been even more effective. Since January 1, 1947, only one child at Bellevue Hospital has died of miliary tuberculosis, which until then was almost 100 per cent fatal, and only one baby died of tuberculous disease of the lung caused by local spread from the primary disease. Thus, in one hospital the case fatality rate from primary tuberculosis and its complications fell from over 20 per cent to 5.0 per cent after streptomycin and to 1.5 per cent after the introduction of isoniazid.

But mere survival is not enough. The great majority of the survivors from meningitis, after long convalescence, are leading normal lives, but a few show remains of the disease in partially paralyzed limbs or in diminished mental capacity. Such poor results seem to occur most often when the meningitis is not diagnosed and treated in an early stage. No one form of treatment will ensure complete recovery from tuberculous meningitis. The most important factors in success would seem to be an wareness of the possibility of tuberculosis and the recognition of the need for vigorous and prolonged therapy. A child with tuberculous meningitis diagnosed late is more likely to die, and if he recovers, is more likely to show evidence of damage due to the disease.

The importance of early diagnosis and prolonged treatment applies equally well to other forms of tuberculosis. A small cavity within a locally progressive primary tuberculosis of the lung without much evidence of pulmonary spread on X-ray will often heal under chemotherapy and remain well. On the other hand, chemotherapy may save the life of a child with more extensive disease but at a later date surgery becomes necessary because a cavity or extensive scarring persists. Even when a complete cure is obtained the child has undergone years of hospital care which might have been avoided by earlier diagnosis of the pulmonary tuberculosis.

Chemotherapy is useful in other complications of primary tuberculosis. Sometimes in tuberculous disease of the bones or glands a sinus has been formed causing drainage through the skin. In such cases almost magical results have been seen with specific therapy, with prompt closing of the sinus, often permitting surgery which would have been impossible without chemotherapy. In tuberculosis of the intestines the symptoms disappear quickly when the patient receives antimicrobial therapy. Many other forms of tuberculosis are also cured by appropriate chemotherapy.

In other complications of primary tuberculosis, such as disease of the bones, or of the lymph glands, it is hard to evaluate the results of chemotherapy, since such forms tend to be chronic and even without treatment have periods of spontaneous remission. Here again, when the complication is diagnosed before extensive damage is done, cure by chemotherapy or conservative treatment or both often results, whereas in late cases surgery is often required. In some forms of primary tuberculosis, notably in disease of the bronchi or endobronchial tuberculosis, so common in infants and young children, no form of chemotherapy so far devised has appeared to either alleviate symptoms or shorten the course of the disease.

No child should be operated on for a tuberculous complication without receiving chemotherapy during the period of surgery and for a few weeks thereafter. Indeed it may be said that because of the danger of spread of the tuberculous disease, no child with active tuberculosis should receive surgical treatment for any cause without coverage with antimicrobial therapy.

The question of the necessity for specific treatment of uncomplicated asymptomatic primary tuberculosis is still under discussion. There was no reason for treating such cases with streptomycin. With the advent of isoniazid we have a different story. While again there seems to be no clear proof that the disease at the portal of entry is affected for the better, no one has reported a case of clinical meningitis developing in a patient who was receiving isoniazid. This is true even in individuals treated for miliary tuberculosis, a form of tuberculosis in which the meningitis rate has been reported as high as 70 per cent. If these observations can be sustantiated, the use of isoniazid must be considered in every child with active primary tuberculosis and possibly in those with recent conversion of tuberculin tests even if chest x-rays are negative. Moreover, it will be necessary to treat with isoniazid for at least a year since it is known that meningitis is most apt to occur during this period. This will be a tremendous task and we should be sure of our facts before undertaking it.

The right way to prove the usefulness of isoniazid in the prevention of meningitis would be to follow a series of children with primary tuberculosis in which some cases are treated for a year and a similar control group is not treated, the selection of cases for each group being made arbitrarily. Such a study is now under way in Bellevue Hospital. Since the incidence rate of meningitis in primary tuberculosis is unknown, a large number of cases may be necessary to decide this important question.

If tuberculous meningitis and other serious complications can be prevented by the wider use of antimicrobial therapy, it will be a great step forward. But it will not eliminate the need for early diagnosis of every child infected with tubercle bacilli before complications occur. Widespread use of the tuberculin test in schools and hospitals and by private physicians is needed in order to promote early diagnosis of tuberculosis and augment the usefulness of chemotherapy in prevention as well as treatment.

PSYCHOLOGICAL ASPECTS OF TUBERCULOSIS*

ERIC D. WITTKOWER

In keeping with similar developments in other fields of medicine, tuberculosis specialists have within recent years increasingly shifted their focus of interest from the tubercle bacillus to the person who harbours it. Their main aim is still to defeat the tubercle bacillus and to heal the damage which it causes but they have also asked themselves such questions as: What kind of person develops tuberculosis? Do emotional states influence the course of the illness? How does one account for the different emotional reactions to the diagnosis and to the illness? What is the emotional response of tuberculous patients to their treatment? What is the best way of handling tuberculous patients? These are some of the questions which as a psychiatrist who has carried out some research in this field I want to discuss in my presentation.

PREMORBID PERSONALITY

Time and again the question has been raised whether a uniform personality type prevails in tuberculous patients. May it be stated right away that in my opinion and in that of many others such a personality type does not exist. The very facts that whole communities, if not immunized, fall an easy prey to the tubercle bacillus and that many persons exposed to a sufficiently massive infection develop active tuberculosis rules out this possibility. But it is also true that many of us, in a civilized community, come into frequent contact with the tubercle bacillus and that only a limited few develop active lesions. One may almost reverse the question and ask: Why are so many people infected with the tubercle bacillus without developing tuberculosis?

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*Used by special permission of Dr. Wittkower, Associate Professor of Psychiatry, McGill University and of the New York Tuberculosis And Health Association. Presented originally at the Fiftieth Anniversary Meeting, Hotel Statler, New York, N.Y., Nov. 21, 1952.

One of the answers to this question, — though only one, — may well be found in psychiatric research. Independent investigations carried out by Weiss, Saul, Pascher, and by myself have come to the same conclusion that a high degree of dependence and difficulty in handling hostilities are a central feature in the premorbid personality of tuberculous patients. Some of these individuals display their inordinate need for maternal affection and allied dependent trends overtly — one may almost say in a blatant form — whereas others conceal them behind such psychological defences as self-assertiveness, ostentatious independence, excessive self-drive and aggressive and provocative behaviour. More often than can be due to chance situations which entail a rebuff, a separation from, a threat of losing or an actual loss of a supporting figure precede the onset of tuberculosis and of its relapses.

The manner in which these personality features are related to a flare-up of a dormant lesion can be understood in two ways: either by lowering of resistance owing to an unhealthy mode of life or by psycho-pathological and autonomic mechanisms analogous to those operative in bronchial asthma. The person who "burns the candle at both ends" does so for reasons inherent in his personality.

Be this as it may, nobody will deny that having tuberculosis has profound and far reaching psychological effects on its sufferers.

Reactive Phenomena

1. *Reaction to Symptoms.* These effects may make themselves felt long before the illness as such has been diagnosed. Consciously or unconsciously patients suffering from tuberculosis respond to the awareness of initial symptoms by minimizing their importance or denying their existence. This denial mechanism which similarly can be found in other anxiety evoking situations is the prototype of many reactions which are encountered afterwards.

2. *Reaction to Diagnosis.* For instance, to safeguard themselves against feelings of depression and of anxiety which are inevitable result of communicating the diagnosis, or because they cannot 'afford' to be sick, many patients take recourse in disbelieving it, in minimizing the seriousness of their condition or in refusing hospital admission. If I pretend to be less seriously ill than I am, I do not need hospital care. Doctors who, out of kindness, understate the patient's condition as well as those who frighten them unduly, though for different reasons, foster a psychological defence of this kind.

3. *Reaction to Illness.* As far as the reaction to illness as such is concerned, many phenomena which have been described as typical of tuberculous patients equally exist in other chronic diseases. For instance, chronic illness of necessity leads to inflation of self-interest due to anxious self-concern and it may lead, as it often does in tuberculous patients, to hysterical and hypochondriacal formations. In addition, in keeping with the regressive trends, which are an inevitable result of chronic illness and of hospitali-

zation, chronically sick patients often display marked overdependence and a demanding need for affection. If we are ill we like to be mollycoddled.

Affectively, feelings of anxiety and of depression usually prevail in tuberculosis patients. These feelings are normal and adequate responses to a serious and intensely frustrating illness such as tuberculosis so long as the disturbance in mood is in keeping with the nature and degree of the anatomical lesion, and with the repercussions which the illness has in the patient's socio-economic situation.

However, full understanding of the emotional reaction of tuberculous patients to their illness and of the frequent discrepancy between subjective feelings and objective findings requires not only due regard to conscious and rational factors but also due regard to unconscious irrational factors.

Let us assume that a patient has been informed that there is something bad inside his chest — the tuberculosis lesion. The discovery of something bad in our environment — in our system of values — signifies not only the discovery of something to get rid of but also that of something to be deprecated. Similarly, the discovery of something bad inside himself may therefore be seized upon by the tuberculous patient's deepseated feelings of guilt and may be exploited as a confirmation of his belief in his badness. He may then express his depressive feelings, his sense of guilt and his self-condemnatory trends by regarding his illness as a well-deserved punishment.

Conversely, the threat to the patient's life which actually exists may unconsciously be linked up with previous situations when misdemeanor on his part in fact or in phantasy led to threats from his environment or from within himself. In this case neurotic anxiety is superimposed on justifiable fear. Anxiety, in its turn, makes for overdependence. Frightened children cling to their mother's apron strings.

Furthermore, if it is true that tuberculous patients not infrequently regard their lesion as a materialization of their sense of badness, one would expect — and actually finds — that they use psychological defences analogous to those used by depressive patients. For instance, analogous to manic patients, they may unconsciously deny their internal badness, i.e. they may adopt a foolishly defiant, ultracheerful or over optimistic attitude towards their illness. In this view the so-called spes phthisica is therefore accounted for by the psychological mechanism of manic denial and not by toxaemia.

Or tuberculous patients may eliminate their internal badness by projecting it onto the outer world. If this happens they are considerably less concerned with the seriousness of their condition than with the real or imagined wrongdoings of those who in their opinion are responsible for causing it, with the shortcomings of those whose duty it is to minister to their needs or with the ostracism to which in fact or in phantasy they are exposed. There may be plenty of reasons for dissatisfaction with doctors and nurses — don't we know it? — but the superimposition on justified grouses or grouses which arise from this source must be borne in mind.

In brief, the normal and adequate emotional reaction to an insidious disease such as tuberculosis is a mood of depression and of anxiety in keeping with the nature and the degree of the lesion. Excessive feelings of depression and of anxiety indicate that they originate from an irrational source.

Unwarranted moods of elation or of resentment and an attitude of defiance suggest that defence mechanisms have come into operation whose function it is to ward off feelings of depression and of anxiety.

4. *Reaction to Treatment.* Added to the effects of the illness are the effects of the treatment. Even if at a later stage surgical measures should be decided upon, tuberculous patients have to subject themselves for prolonged periods to a state of childlike dependence on doctors and nurses and to a life of complete inactivity or at least of enforced idleness. No wonder that a substantial number of them surrender to their state of dependence which may reinforce preexisting dependent trends; while others endeavor to shake it off prematurely. As regards inactivity, it is perhaps not sufficiently recognized that motor inhibition favours phantasy production and that it is a frequent source of anxiety.

Hospitalization as such serves the dual purpose of removing the patient from an environment where his presence may be harmful and of giving him the treatment which he needs. Psychologically it brings home to him the fact that he is a potential menace and the necessity to accept dependency. Contact with fellow patients may act as a supporting factor or it may arouse so much anxiety — on various scores — that the patient leaves prematurely. Not enough attention has been paid in the past to the psychological aspects of sanatorium management. Overlenient and over protective management favours regressive trends and holds up recovery, whereas oversevority makes for foolhardy and obstreperous behaviour.

Consequently the sanatorium staff find themselves confronted with patients who do not want to go home when they should, those who are recalcitrant and those who discharge themselves prematurely. The number of this last group, which is big enough as it is, is enlarged by those who successfully badger their doctors into discharging them before they should go. There are no doubt many reasons for irregular discharges. One of them, which is perhaps not sufficiently recognized, is the irrational and illogical hope of many patients to avert deterioration by going home. Illfounded reassurance on the part of doctors fosters this erroneous belief.

5. *Reaction to Discharge.* Few patients relish the idea of going to a sanatorium but when eventually the long hoped-for date of their departure arrives most of them feel anxious and uncertain of themselves. If their recovery continues they have to re-adapt themselves to being healthy, to life in a healthy environment and to resumption of work.

Readaptation to health is a slow and protracted process. Fear of relapse vanishes slowly, if at all. We are all familiar with patients who cling to their doctors; some of them are so much afraid of the possibility of a relapse — despite a 'clean bill', — that they avoid the slightest exertion sometimes in an absurd manner. More often than not these patients fail to respond to reassurance because their anxiety, although apparently concerned with and related to their illness, really arises from another source which requires exploring. Conversely, there are other patients who at an early date, defiantly and against their own interests, keep away from their doctors because they want to forget their illness.

Other difficulties which await the homecomers arise from their reduced wage-earning capacity, from their lowered physical strength and vitality, and from their re-entry into the family circle, the circle of previous friends and society in general.

Financial deterioration is a frequent source of distress and of friction. It is easy enough to stick to one's husband if he is out all day and brings his wage packet home at the end of the week; but a husband who hangs about all day and does nothing and earns nothing may be more than many a woman can stand. If the breadwinner happens to be the sufferer, lowering of standards and impairment of his prestige in the family structure can hardly be avoided. The ex-patient, understandably though unjustifiably, blames himself for this state of affairs and is apt to suspect accusations when none exist.

Members of the family may fail in other respects. They may subject the homecomer to manifest, — or perhaps even more painfully, — to concealed fear of infection; they may bother and irritate him by their oversolicitude, may seek their own amusements or even accuse the convalescent of overdoing caution. Some patients allow thmselves to be dragged into strenuous activities rather than be a deadweight on their healthy husband or wife or a spoilsport to their friends, not infrequently with disastrous results.

Equally external and internal factors enter into the work situation. Persons who had previously been workshy can obviously not be expected to be first-rate workers simply because they have suffered from tuberculosis. They usually make the most of their disability and complain that excessive demands are made on them. Anxious individuals seek and content themselves with inferior jobs rather than endanger their precious health. A depressive mood, arising from thwarted ambitions, paralyzes a person's initiative and, like resentment, prevents him from making a wholehearted effort. Persons who throw reasonable caution to the wind because they deceive themselves about their handicaps, or because defiantly they strive for more than they should do, not infrequently choose unsuitable occupations. Both attitudes may lead not only to disappointment but in some instances to a breakdown.

PRACTICAL CONCLUSIONS

Some practical conclusions which were reached in conjunction with tuberculosis specialists may be permissible.

1. *First Approach.* Though most doctors deal with their patients very tactfully, some are unnecessarily blunt and others anxiously overkind. Doctors who beat about the bush or raise unfounded hopes do not act in the patients' and not even in their own interests. When the truth comes out, as assuredly it will, it shatters the patient's confidence in his recovery and in his doctor's word.

2. *Hospitalization.* Should hospitalization be decided upon, the doctor, — and nobody else, — should induce the patient to accept it. Neither should the patient be frightened nor coaxed by blandishments into acceptance. Confidence in the doctor's decision is the power that carries, though assistance by the social worker is an essential adjunct.

3. *Personnel.* Research in mental hospitals has shown that friction among the attending personnel is reflected in the patients' condition. The same applies to institutions for the tuberculous. Hence well consolidated harmony among the members of the therapeutic team is essential for the well-being and speedy recovery of the patients.

Pivotal in this team is the doctor to whom patients look up with hope for help. Owing to their wish for recovery they are apt to elevate the doctor to the position of God Almighty, and doctors taken in by their flattery not infrequently behave as such. To assuage their anxieties regarding the illness, the situation of the family and their own future, patients want to talk to their doctor. He is a bad father who has no time for his children.

Concensus of opinion is lacking regarding the advisability of informing patients about their condition. Decisions on this point obviously have to vary from case to case. But by and large it is probably true that patients resent being treated as if they were not old enough to know what is the matter with them. Explanatory talks, broadcast or otherwise, on tuberculosis and the uses of the sanatorium, a feature "Any Questions?" run at some sanatoria, and group discussions have been an outstanding success. Only in the cases of patients who are irrevocably going downhill is adherence to the truth definitely out of place.

At several sanatoria which I have visited, nurses were kept in the dark about the physical status of their patients and were not allowed to 'fraternize' with them. These procedures run counter to the interests of the nurses as well as those of the patients. A nurse who is ignorant about her patients' physical condition is unable to handle them intelligently; whereas a nurse forced into detachment is deprived of her desire to give maternal care which, in their regressed state, her patients badly need. The importance of sterility in the treatment of infectious diseases is generally acknowledged; but the damage done by emotional sterility is often underrated. Conversely, a nurse who "mothers" her patients excessively may gratify her own emotional needs but does not necessarily serve the interests of her patients.

Medical social work occupies a marginal position; it overlaps in its functions with those of the physician, of the psychiatrist, and of the "good" nurse. In practice, owing to the shortage of psychiatrists, social workers often have to take over the duties of psychiatrists. As in other marginal professions, social workers can perform an important coordinating task, or by encroachment on the territories of other members of the therapeutic team they may give rise to a good deal of trouble. Primarily the function of the social worker is to assist the patient in adjusting himself to his social environment; hence the designation. But she can carry out this function successfully only if she pays due regard to the patient's emotional state; otherwise she may land herself in the position of an almoner in its literal connotation.

4. *Patients.* As regards the patients, so far as possible, individual requirements should be taken into account. Conscientious, self-driving individuals should be encouraged to do less than their severe social sense allows them, and anxious, self-centered individuals to do more than their fear of reverses and relapses let them.

During the initial stage, patients should be allowed to experience feelings of depression and to pass through a phase of it without much interference, for after all they have good reason to feel depressed. Nobody can seriously believe that a "Cheer up, ol' man" approach to a patient or advice that he should pull himself together or that he should not worry, can influence his state of mind in any way. Similarly, anxious patients who frantically try to conceal their anxiety should be tactfully encouraged to admit their fears without feelings of shame. Afterwards, with the proviso made previously, the aim all along should be to induce a patient to make a realistic assessment of his situation which may be just as remote from the fool's paradise of the patient who underrates the seriousness of his illness as from the inferno of his depressive counterpart who overrates it. Encouragement of an overcomplacent or defiant attitude is not in the real interest of the patient.

5. *Management.* Asked what treatment they receive, patients often say, "No treatment, just rest". Hence it is essential to bring home to patients the therapeutic value of rest and the fact that those on conservative treatment are not necessarily worse off than those who receive surgical treatment. Surgical operations act as a great fillip to the patients' morale; they feel very acutely that something is being done for them. Fear of operations is justified; if it assumes abnormal proportions, ridicule or annoyance do more harm than good. Misconceptions should be dispelled, while phobias may require expert attention. Failure of an operation will hardly ever impair a patient's trust in his doctor if he has been forewarned, or if an explanation for the failure has been given to him afterwards. Similarly, ward morale will never be greatly upset by an expected death of a patient, but wards often react severely to the death of a patient after a minor operation. Feeling the icy atmosphere which he encountered on entering a ward, a medical officer had the wisdom to explain to the patients how it happened and easily restored the balance.

The customer is not always right, but the awkward customer is not always wrong. A fair hearing should be given to any grievances and grouses. In most cases a simple talk between the patient and the medical superintendent will settle all difficulties. To expel most patients of a mutinous ward does not necessarily deal effectively with the cause of their complaints.

The ratio of signing-out against medical advice is obviously lower in "good" sanatoria than in "bad" sanatoria. But the treatment facilities and the amenities available are undoubtedly not the only determining factor. The personality factor also has to be taken into account. Persons who have always kicked against authority, family-bound individuals and those who cannot tolerate communal life or life in a community composed of members of their own sex, are potential self-dischargers. Patients with minor lesions may quit because they fail to see the reason why they should stay; while patients who progressively go downhill despite sanatorium treatment may depart prematurely on the logical grounds that they do not get better anyway, and on the illogical grounds that removal from the scene of anxiety may lead to removal of the source of anxiety. Fear of operations given as reason for signing-out falls into the same category.

No magic formula can be offered to deal with this complex problem which is obviously only one segment of the total problem of sanatorium management.

Every teacher knows — or should know — that frightened children are unhappy children, compliant on the surface only, whereas children who feel understood and have some fun do better work. The same applies to sanatoria.

A superintendent who runs his sanatorium on the lines of a remand home can hardly be surprised to have a good deal of trouble; on the other hand reasonable liberalism and a laissez-faire laissez-aller attitude should not be confused.

Passive entertainments such as movie shows do not succeed in counteracting regressive trends. The same objection applies to some extent to occupational therapy. Even for the most enthusiastic disciple toy-rabbit making loses its attractiveness after several years. As the patient emerges from his regressive dependent state he should be encouraged to embark on activities which require his active participation, such as education courses, directed reading, work at a patients' council and in committees.

Walks are a welcome break in the sanatorium routine. To a certain extent their standardization is unavoidable. But to walk along the same fixed route day in and day out, and several times a day, is very boring. After the eighth round past 'Haemorrhage Hill' and 'Sputum Pond' patients become tired of going round in circles.

6. *After-care.* Prior to discharge a heart-to-heart talk of the medical superintendent or one of his senior medical officers with the patient and with members of his family seems essential; or, if this is impossible, owing to lack of time, an after-care talk to a group of patients proves of great value.

A trial period at home some weeks prior to the final discharge from the sanatorium may help a great deal to lessen the inevitable anxiety resulting from a change-over from the world of the sick to the world of the healthy.

In the past it has been a common practice to give vocational guidance to patients mainly on the basis of their physical condition, and on the basis of what they wish to do. However, presence or absence of drive on the part of the patient, fear of doing too much or desire to do more than is wise, hysterical exploitation of, and compulsive urge to disregard, handicaps are all factors which ought to be taken into account. In every walk of life there are plenty of self-selected unsuitables but, in the case of the disabled, choice of the wrong job may be of serious consequence.

The view is generally accepted that tuberculosis workers cannot be easily absorbed by normal industry. The solution of the problem seems to be sheltered employment. However, sheltered employment — hence its designation — entails continuation of protection in the work environment. Such protection may be necessary but should not be perpetuated beyond the limits imposed by the patients' condition because it reinforces their dependent trends.

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National Conference of Tuberculosis Workers, 1790 Broadway, New York 19, N.Y.C.
National Tuberculosis Association, Inc., 1790 Broadway, New York 19, N.Y.
N.Y. Tuberculosis and Health Association, Inc., 386 Fourth Ave., New York 16, N.Y.

PERIODICALS ON THE TUBERCULOUS

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SECTION V

CHAPTER VI

THE HOMEBOUND AND HOSPITALIZED

THE HOMEBOUND AND HOSPITALIZED

EDUCATION OF HOSPITALIZED CHILDREN, BY MARGARET FITZGERALD

RESPONSIBILITY OF THE EDUCATOR IN HOSPITAL, BY ELENA D. GALL

A MODERN MIRACLE, BY MARY FRANCES MARTIN

THE HOME INSTRUCTION STUDENT, BY MARION MARTIN

AGENCIES, PERIODICALS, AND BIBLIOGRAPHIES

THE HOMEBOUND AND HOSPITALIZED

Who are the homebound and hospitalized? The homebound or hospitalized individual, child or adult, is a person whose mental or physical condition is such that he is prevented from leaving his home or hospital for education, medical restoration services, general rehabilitation, employment or for other activities. Usually, but not always, the homebound are the most severely handicapped. Often the psychological and emotional adjustments of the individual are more important factors in creating a 'homebound' condition than the physical handicap. For our purposes we include the hospitalized child in this chapter.[1–5]

Incidence and Classifications

Accurate statistics on the number of homebound and hospitalized individuals, children and adults, are difficult to find. No census of large import has been made, and those available are limited to small geographic areas. It has been estimated that the homebound population (excluding persons in institutions) numbers about one million individuals.[6] A recent study[7] indicated approximately 1,850,000 children admitted to general hospitals each year. Many of these hospitals have educational services; many do not. Special children's hospitals provide for 91,000 children in the United States. Most of these are long-term patients with severely disabling diseases, such as tuberculosis, rheumatic fever, post-operative cases with many types of orthopedic disabilities, muscular dystrophy, post poliomyelitis, spina bifidia, cerebral palsy, long-term fractures; and those chronic illnesses which prevent school attendance, such as nephritis, chorea, diabetes, epilepsy, and asthma.

A recent report shows the following children receiving services under the U.S. Crippled Children's service program (1950):

Congenital Malformations of the circulatory system	2,207
Cleft Palate and harelip	7,873

Ear conditions	8,462
Eye conditions	5,410
Epilepsy	837
Rheumatic fever and heart disease	9,248
Tuberculosis of bones and joints	2,910

A large number of these children will be found to be in the long term hospitalized or homebound classification.

Many homebound or hospitalized individuals are confined for a shorter length of time, six months to a year, but need services of varying kinds to effect a full recovery. These individuals are not included in the above estimates. Since the time of the National Health Survey[9] (1935-36), one additional study conducted by the Census Bureau's Population Survey[10] attempted to secure statistical information on the extent and longevity of severe disability. This latter study showed that "in Sept. 1950, nearly 2 million persons 14-64 years of age (not in institutions) have been disabled for at least a full year. Of these 800,000 reported that they were unable to work." Though these figures are incomplete, it is probably reasonable to assume that there are over one million homebound, hospitalized and institutionalized individuals in the United States needing special services of a medical, educational, and rehabilitation nature, — a challenging field for the special educator.

These homebound hospitalized individuals have become so from practically every type of disease or injury. The most important causes in order of frequency are cardiac conditions, mental and nervous disease, arthritis, and allied diseases. Though we lack sufficient data to be scientifically accurate, as to age, sex, economic conditions, type of disability, rural and urban status, socio-medical and educational services received, the majority of the homebound and hospitalized are in the upper age brackets.[11]

"Among the recipients of ald age assistance (1953), 92,000 (3.6%) were found bedridden; an additional 368,000 (14.3%) although not bedridden required a substantial amount of care from others because of some physical or mental impairment." Many of those bedridden or needing care (66%) were 75 years of age or older; 33% lived in rural areas; 62% were women.

Chronic illness, a special field of study in itself, has a close relationship with the homebound and produces many of our disabled citizens. Studies now in progress[12–14] should reveal more accurate information on the extent, nature, and severity of their condition and services required.

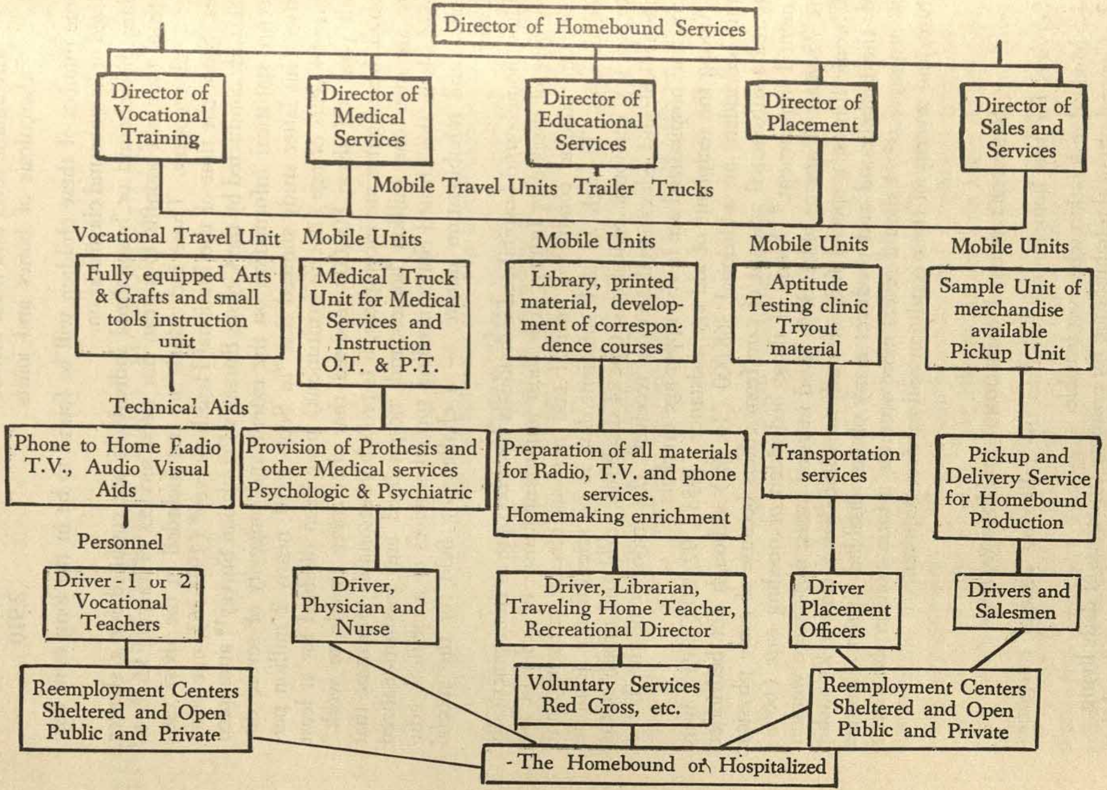
SERVICES FOR THE HOMEBOUND AND HOSPITALIZED

Services for the homebound fall into the following general categories:

1. Medical restoration wherever feasible.
2. General physical rehabilitation for ordinary functions of daily living.
3. Special education including academic, vocational and occupational therapy services.
4. Selective placement when feasible and including home employment.
5. A carefully planned prevention program for preventing disabling diseases and accidents causing severe disabilities.

A Suggested

HOMEBOUND OR HOSPITALIZED SERVICE PROGRAM


Director of Homebound Services
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Director of Educational Services
Director of Placement
Director of Sales and Services
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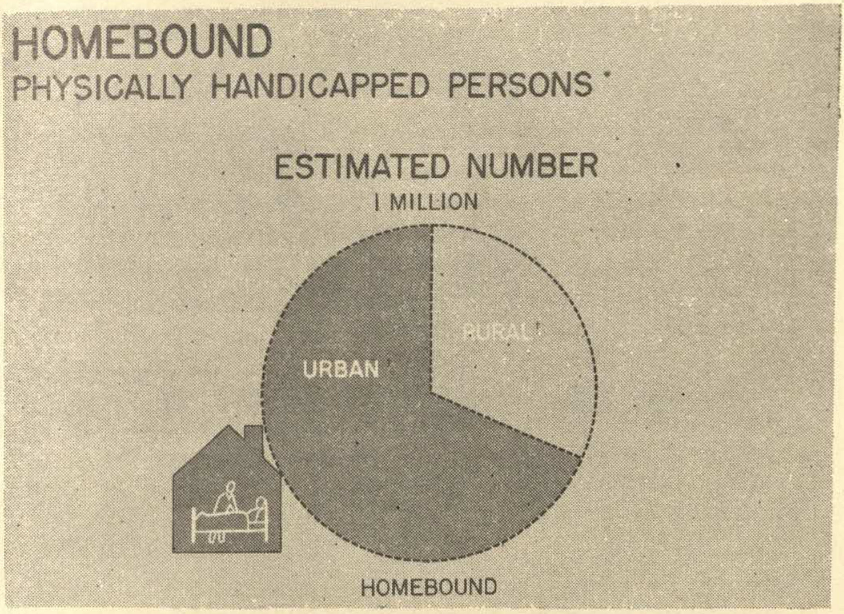
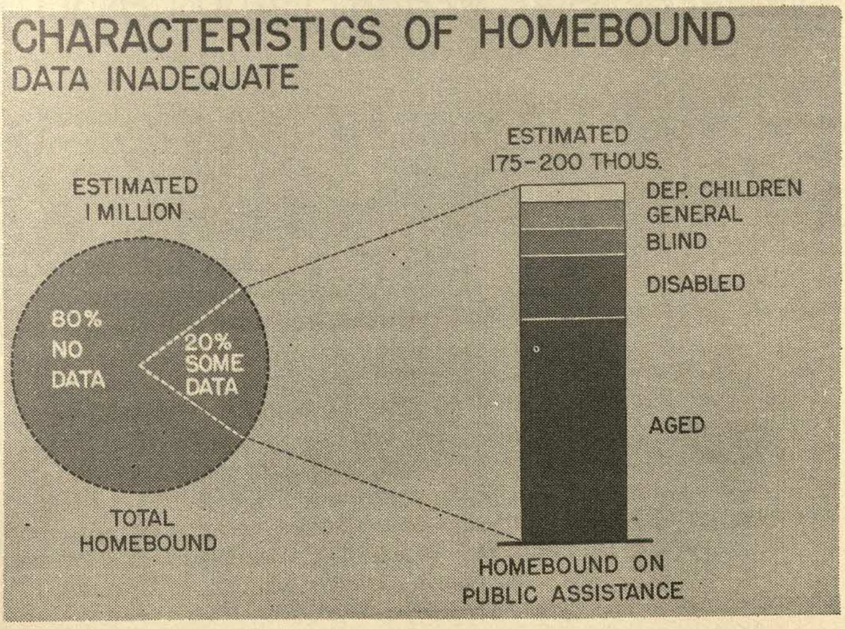
Mobile Units
Mobile Units
Fully equipped Arts & Crafts and small tools instruction unit
Medical Truck Unit for Medical Services and Instruction O.T. & P.T.
Library, printed material, development of correspondence courses
Aptitude Testing clinic Tryout material
Sample Unit of merchandise available Pickup Unit
Technical Aids
Phone to Home Radio T.V., Audio Visual Aids
Provision of Prothesis and other Medical services Psychologic & Psychiatric
Preparation of all materials for Radio, T.V. and phone services. Homemaking enrichment
Transportation services
Pickup and Delivery Service for Homebound Production
Personnel
Driver - 1 or 2 Vocational Teachers
Driver, Physician and Nurse
Driver, Librarian, Traveling Home Teacher, Recreational Director
Driver Placement Officers
Drivers and Salesmen
Reemployment Centers Sheltered and Open Public and Private
Voluntary Services Red Cross, etc.
Reemployment Centers Sheltered and Open Public and Private
- The Homebound or Hospitalized





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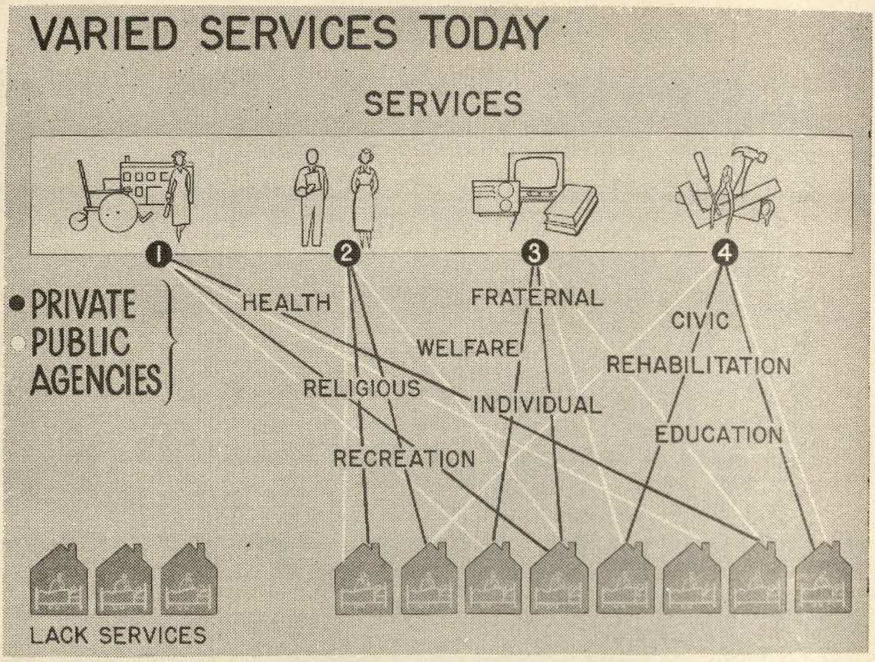

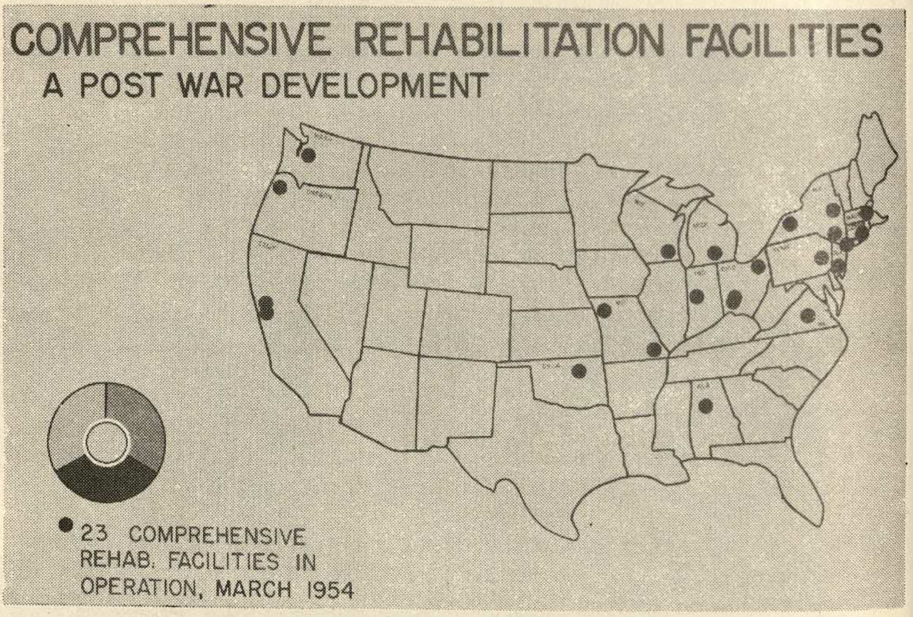

Charts from *Study of the Homebound, Programs for Physically Handicapped Homebound Individuals,* Report to Congress, Feb. 2, 1955 (U.S. Department of Health, Education and Welfare, Office of Vocational Rehabilitation: Washington, D.C., 1955).

6. Special psychological, psychiatric and social therapeutic services.
7. Financial assistance by municipal, state, federal and private agencies.[15]

Rehabilitation centers and hospital services have grown rapidly during the past ten years. Many homebound individuals can receive much valuable aid through these facilities. Many more such services are urgently needed, and must be properly located to adequately serve rural and urban areas, and properly financed and staffed with trained personnel. Lack of these is the most pressing problem facing those planning an adequate service program for the homebound. Public Laws 565 and 482, passed by the 83rd Congress, make possible substantial expansion of this program if definitive service programs are placed in operation.

Additional home services to the homebound are also an urgent need. Physical rehabilitation demands such disciplines as physical therapy, occupational therapy, application of prosthetic devices, and speech and hearing therapy above and beyond the basic medical services. Hospital and rehabilitation services now available are costly, and are inadequate to meet the realistic demands. It is apparent that home care programs, including home nursing services, must be greatly expanded if they are to remotely meet the service needs.[16]

The development of all types of auxiliary services[17–19] to the homebound can be substantially increased, — self-help devices, new prosthetic devices, mobile service units of various types, and home management aids.

Emotional maladjustment looms large in the homebound population among both children and adults. Failure on the part of the severely disabled individual to adjust himself thwarts the whole process of physical rehabilitation, employment, and general happiness in living. Socio-psychiatric services are needed where indicated in the early stages to offset such emotional maladjustments as (1) extreme frustration, (2) accentuated fears, (3) lack of realism, (4) low individual morale, (5) inadequate social relationships.[20–22]

ENROLLMENT IN HOME INSTRUCTION FOR A FEW STATES, 1953-54

	HOME INSTRUCTION			PUBLIC SCHOOL		
	Total	Elementary	Secondary	Total	Elementary	Secondary
Connecticut*	340,373	224,764	115,609	893	544	349
Illinois	1,307,468	989,275	318,193	1,548	1,227	321
Missouri**	710,126	555,761	154,365	535		
New Jersey	811,664			1,645***		
New York	2,174,285			2,782	1,373	1,409
State				1,301	725	576
City				1,481	648	833
Oklahoma	473,173	307,393	165,780	334	276	58
Tennessee	716,295	575,024	141,271	1,530	1,194	336
Virginia	695,277	521,938	173,339	955	785	167 (3 adults)

*Connecticut divides elementary and secondary as New York City does: Elementary-Kindergarten through 6th grades; secondary—7th through 12th grade.

**Missouri figures for public school enrollment are estimates. Official figures are not available at this date.

***New Jersey figures include individual bedside instruction in hospitals.

Educational and recreational services are greatly needed for the homebound. Enriched programs of special education for children in hospitals and homebound are a pressing need, — radio, television and home telephone services of an educational nature, including library, handwork, prevocational courses, and correspondence courses. More recorded materials, film strips, and a variety of other related services also need to be provided.

For homebound or hospitalized children, an expanded and enriched service is a current urgent need. It is estimated that one per thousand in some states now receive home instruction. About 700,000 children are receiving services on home instruction in the United States. In 1952 all states except one reported home instruction services.[23]

Perhaps the most difficult service to operate is a vocational training and placement program for the homebound. It is estimated that there are about 10,000 homebound individuals in some form of home industry or craft. Many more could be employed if a practical training and service program were developed. A service such as listed on the accompanying page would go a long way to put many more homebound on a full or partial self-sufficient employment program.

State and Federal agencies, the Veterans Administration, and private agencies all have some services in this connection through sheltered shop,[24] correspondence courses, home teaching, and rehabilitation centers, and through encouragement of self employment in small businesses.

Much progress has been made in developing service programs for the homebound and hospitalized during the past two decades, but much still remains to be done. It is apparent that no formal service pattern for the areas has been developed. Each geographic and disability area seems to develop its own programs; while this gives a maximum of latitude to meet local problems, it does not develop minimum or optimum standards for an effective program. Rural areas are woefully neglected. Hospital programs are hit and miss on far too large a scale. Effective use of public and private services in efficient coordination for maximum service is lacking. This makes for both duplication and lack of services to the individual at the time of most effective treatment. Revision of legislative regulations to receive maximum benefits from federal aid are lacking in many states.

Scattered, fragmentary information about the homebound is all that is available at present. Proper servicing of the homebound is not possible under such conditions. Without adequate census identification and classification data, no adequate program can be built.

It is hoped the next decade will see substantial gains in producing effective service programs for the homebound and hospitalized from the fields of special education and rehabilitation.

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EDUCATION OF HOSPITALIZED CHILDREN

MARGARET FITZGERALD

The child in the hospital! To many this is a pathetic concept, appealing to their sympathies. This attitude is plainly indicated by visitors being shown through a hospital. To those who work with the child, the concept is a hopeful one, because it usually means that the child's illness can be improved and, in many cases, cured. However, while the child is a patient in a hospital, he presents a problem. As Dr. Howard Rusk stated, speaking of his experience in the Air Force Medical Service:

> We soon learned that you cannot put an individual to bed for a week or ten days, in a state of suspended animation and expect him to get up in the same condition, either physiologically or psychologically, as he was before.

While the child is a patient, he must still go on living, and it is necessary for him to continue to grow and mature, physically, mentally, socially and spiritually.

According to a survey made by the American Academy of Pediatrics, there were 91,000 children of school age in special hospitals for long-term illnesses, and 1,850,000 in general hospitals.

These are the figures quoted by Dr. William Palmer Lucas in a pamphlet, *Education of Children in Hospitals* published by the National Foundation for Infantile Paralysis, Inc., in 1950.

So it is clear that the problem presented by children in hospitals is a sizable one. These children may be suffering from poliomyelitis, tuberculosis, cardiac disease, or any pediatric or orthopedic condition. They may also be intellectually gifted, average or retarded. Each one presents an individual problem. It is necessary that the members of the hospital personnel find out how the child feels about being in the hospital, that they may meet his fundamental needs, orient him in this new and formidable situation and help him to feel secure. They must reach across the bars of the small child's bed, and the barriers of the respirator or rocking bed, past the casts and the crutches, the suspension pulleys or the bradford frame, to the child himself. He must make friends, become a part of a group, and be occupied in activities suitable to his abilities and needs. All this is necessary for him in order to benefit fully from the medical treatment he is receiving, as well as for his general welfare.

The hospital may present an environment which is favorable to education. This is more likely to be the case if the building is new and has plenty of room, if it is located in the country, and, most important, if its personnel recognize the need for education for child-patients. The difficulties of carrying on education in a hospital are often present and immediately obvious. All the medical, nursing and therapy activities take precedence over education. The teacher must adapt herself to working around and between these routines. She must sometimes teach children at the bedside in crowded, active wards. She must step aside when doctors appear or treatments or medication are administered. She must be willing to have her work interrupted at any time. She may have little space at her command either for working or for supplies. All these disadvantages are not usually present, but some of them frequently are.

On the other hand, many hospitals have distinct advantages for the child, for the educational activity, and for the teacher herself. There may be pleasant and well-equipped school rooms, libraries and recreation facilities. The hospital plant furnishes many possibilities for learning. Surely it is just as important for a child who is spending some time in a hospital, to learn something about it, as it is for the child at home to learn about the 'community helpers' we hear so much about. The hospital is a community agency, and one of the most important; and its personnel are certainly community helpers. It is an excellent place to learn about the occupations of its personnel; about the history of medicine in improving health and extending life, especially as related to children's diseases; about its financing and the part the taxpayer plays therein; about the related agency of public health and the voluntary agencies promoting health. There are the various departments to visit, such as the x-ray, the pharmacy, the kitchens, the laundry, and the library. There may be a nursing school or an occupational therapy department. If the hospital is in the country, there may be a farm connected with it.

Of all these, the appropriate ones would be chosen for each grade level. Some departments could be visited by some children. Some might send a representative to speak to the children. A study of the hospital would make an excellent unit of work which would interest the children and present opportunities for learning in various areas.

Many teachers will find a more liberal attitude toward life in a hospital than in a public school. The teacher may miss her teacher colleagues, but in the public schools the teacher sometimes seems to associate only with other teachers and to acquire as a result a gradually narrowing point of view. In the hospital, she is bound to be broadened by contact with members of other professions. The children also benefit from this. The contact of each child with a number of educated and cultured adults, in addition to his teachers, will have an indirect, if not a direct, effect on his attitudes and behavior. The children also get a practical though informal education in health and hygiene, through contacts and experiences with nurses, doctors, dietitians and therapists.

Some hospitals have regular moving pictures and special activities like hobby shows for patients.

Other advantages to the teacher working in a hospital include the cleanliness of the children, the smaller size of the groups with whom she works, the informal nature of her association with them, and the pleasure the children get from attendance at school.

The staff members who will be most concerned with the children include doctors, nurses, dietitians, physical therapists, social workers, and sometimes occupational therapists, psychologists, recreation workers, and volunteers.

These individuals comprise the 'team' which is of the greatest importance to the success of education in the hospital. The purpose of the team is to get everyone concerned with the patient to work together for his total treatment and rehabilitation. To do this, ideas and information must be exchanged, and a plan must be agreed upon. In addition to the hospital personnel, the parents of the child should be included. Since the parents will certainly do a large share of educating the child, this means of channeling their efforts in the right direction should not be neglected. If possible, one member of the team should be an expert in child development, and all its members should have some knowledge of the well child. When its plans have been carried out, the team should evaluate the results.

All the aims of good education apply to the hospitalized child's education. These include producing good citizens for a democracy, citizens interested in the common welfare, able to cooperate in bringing it about, willing to accept responsibility, free from race-prejudice, and appreciative of other cultures; individuals who feel secure because they are welcome members of family, and neighborhood and school groups.

To succeed in these aims, it is necessary to meet the needs of the individual child, to motivate his learning by offering units of work which appeal to his natural interests and are within his levels of achievement. The more interested the child is, the more effort he expends, and consequently, the more he learns and matures. In a hospital this interest is particularly necessary. If he is really interested and able to achieve, he will be secure, relaxed, and happy, and such an emotional state has a valuable therapeutic effect.

It is necessary, in order to produce this effect, to include group teaching for every child every day. Working in a group helps the child to make friends, gives him a chance to cooperate, to learn from other children, and as a result, to develop feelings of security. It enables the child to tolerate better his enforced absence from home and family.

He should have an enriched program, including art, music, dramatics, games, occasional parties, books, stories, nature study, science. If necessary, these activities can be carried on in the ward; if there is no classroom, even group work can be done in the ward. Provided this group work, which may be multigrade, is carried on, supplemental individual work at the bedside need not be without value. Individual, remedial help is required by many children, and can be given at the bedside.

Units of work can be adapted to multigrade situations. Detailed accounts of several units of work successfully carried out in hospital multigrade situations will be found in the bibliography.

If an enriched and dynamic type of teaching on the child's level is carried on regularly every day, he should be able to mature sufficiently to keep up with his class. This is usually necessary for his peace of mind. However, undue stress should not be placed on 'keeping up' to the point of rigid adherence to the home-school textbooks and course of study.

The hospital should supply sufficient locked storage space for supplies, and if possible, should provide space in which to get the children together for necessary group activities, including units of work. It should also supply bed desks, book holders, tables for wheel chairs and other special equipment. The local board of education probably will be responsible for textbooks and general school supplies. The teacher should keep up the contacts between the hospitalized child and his own school.

If there is no recreation worker, recreation for children should be a part of the school program. In either case, it should not be primarily of the passive type.

While more dynamic supervision than is usually furnished is necessary for the hospitalized child, he also can benefit from a regular free time, perhaps after supper, when he does exactly what he wants to do, with no interference and only such help as he requests. Without some time to follow his own fancies, vagrant or purposeful, he may feel pressured, as does many a well child whose entire day is arranged for him.

The secondary student also needs to have his education tailored to his individual needs. It should not be confined to rigid mastery of subject matter. If his physical condition will leave him handicapped, he also needs vocational guidance, and possibly referral to a State Vocational Rehabilitation Bureau.

What sort of a teacher is needed to meet this situation? Since the best teaching is needed, the best teachers will have to be recruited to do it. These teachers must be well prepared, which includes: (1) several years of successful experience in teaching well children; (2) a teaching internship in a hospital during preparation; and (3) special methods courses in multigrade teaching, particularly selection and adjustment of units of work to the multigrade situation. Her training should aid her to acquire certain personality traits and social skills, including warmth, friendliness, habits of relaxation, tact, stability, flexibility and ingenuity; the ability to be a friend to the children, to accept her status on 'the team' and to cooperate wholeheartedly with the medical 'side'. At the same time, she must take opportunities to explain to the team members the value of the educational activities, not only to the child, but to the therapeutic purposes of the team. She must be able to provide real and vicarious opportunities to the children for necessary experiences, especially those experiences which do not arise automatically in a hospital. She should be aware of the mental hygiene approach and of the principles of child growth and be willing to experiment and explore. In addition to these qualities and skills she should have good physical health, intelligence above average, a high academic achievement, and cultural interests. She must make use of community agencies in her work, including parent groups, special agencies working for the physically handicapped child, the state department of education, the U.S. Office of Education and the local school board. Finally, she, as well as other members of the team, must be ready and able to interpret to the public, the need and the value of the educational program in hospitals.

Grasslands Hospital Educational Program

Grasslands Hospital, the Westchester County hospital, has an excellent physical plant in its children's building, known as Sunshine Cottage. The cottage is built in the form of the letter "H" with three small additional wings, and is two stories high with a capacity of ninety-two beds. The cross piece is the central hall with a lobby at one end and offices on each side. The ends of the "H" house six wards, the dietary department and the school.

There are closed porches or terraces along one side of each of the four main wings; most of the rooms open on to one of these porches or terraces. Many of the windows are decorated with etched figures from *Alice in Wonderland* and Milne's *Winnie the Pooh.* There are murals in three of the rooms used by the children.

It is a very attractive building set in a beautiful country landscape. The general effect is of bright, clean color, and fresh, airy space against a backdrop of trees and sky.

Children suffering from all types of acute and chronic conditions come to Sunshine Cottage, but the most common illnesses are convalescent polio including partial paralysis, tuberculosis, and general pediatric conditions.

Grasslands Hospital is the county center for the treatment of poliomyelitis. Children acutely ill with this disease are admitted to the communicable disease ward in the Main Building, and sent to Sunshine Cottage only when the acute stage is past. The National Foundation for Infantile Paralysis supplements the treatment supplied by the Hospital by furnishing respirators and other special equipment.

The child's first two weeks in Sunshine Cottage are spent in an isolation ward, in case he may have been exposed to a contagious disease before admission. After the quarantine period, he is usually approved for school by the resident in charge.

The daily routine for Sunshine Cottage patients follows:

7:10	Prepare children for breakfast.
7:20	Breakfast.
8:15	Start giving A.M. cares. Baths, make beds, treatments, shampoos.
9:00-11:00	Individual and group teaching in the ward and the classrooms. Children not having school may watch selected T.V. programs.
9:30	Drinking water and nourishment. Orange juice.
9:45-10:45	Children taken outdoors, condition of patient and weather permitting. (School work may continue outdoors.)
11:00	Serve dinners.
12:00-12:30	Treatments and medication. Children prepared for rest hour.
12:30-2:00	Rest period.
2:00-4:00	Children go to classrooms for school work. Recreation for children in ward. Supervised by nurses and volunteers.
3:00	Tuesday. Music therapy by volunteers.

4:00 Supper.

6:30-
8:00 Children may watch T.V. programs, listen to radio.
Thursday, moving pictures.

8:00-
8:30 Getting to bed. Ward quiet and lights out.

In Grasslands Hospital the school is one of the hospital's departments, and the principal teacher functions as a department head. She attends department head meetings and is in this way kept informed of hospital activities, problems and achievements. In these circumstances, the school is more an integral part of the instiution than when the teachers are furnished by a local school board.

The members of the medical staff who are particularly concerned with the children include those from the Physical medicine-Rehabilitation, Tuberculosis, Pediatrics and Orthopedics Divisions, both the attending or supervising, and the intern and resident groups.

The present staff member in charge of physical medicine and rehabilitation trained with Dr. Howard Rusk and is still associated with him at Bellevue Hospital and the Rehabilitation Institute of New York University.

The Director of this service believes in the team concept and in treating the whole child. He invites the principal teacher as well as the doctors, nurses, therapists and social workers to attend ward rounds whenever there is an influx of polio cases. He is very interested in securing school work for the children as soon as their physical condition allows. The physical therapists who work under his direction are also eager to cooperate and they arrange treatment schedules so that children in the same age-group and grade are released for school together. An efficient arrangement for school work also requires the cooperation of the nurses, for they give the hot packs and treatment baths to the polio patients, and they are responsible for having the children transported to the school.

The volunteer department is available for special help in periods of emergency. Upon request, the Supervisor of Volunteers recruits former teachers to carry on educational activities under the supervision of the school. These activities include individual tutoring, arts and crafts, music, story hours, indoor gardening, giving out library books, and supervised play periods for nursery-school and kindergarten children. Volunteers also work in the wards regularly helping with nursing care and recreation.

The team at Grasslands works rather informally, but groups concerned with the same problem talk it over, agree on procedures, and cooperate to follow them to a conclusion.

As the schedule shows, the hours when the children are available for school are from nine to eleven and from two to four. Not all children are available all that time, because necessary medical or nursing care or physical therapy may interfere. Most of the children, however, are available for two hours or more every day. The exceptions occur at the height of the polio epidemic, when packs and therapeutic exercise may occupy certain patients for most of their waking hours.

School continues throughout the year, with teachers taking turns vacationing.

When the child is first approved for school, the 'School Permission' may specify bedside work in the ward. Later he will be allowed to come to school in his bed, then in a wheel chair. When he becomes ambulant, he walks to school.

During the time the child is in school, the teacher makes every effort to meet his individual needs. The first day in school is devoted to standard achievement tests, and his program is based to some extent on their results. If he needs remedial work in any subject, such work becomes a part of his program. This is a very valuable service which the hospital school can give to its pupils. It is possible because of the small classes, and it is easy to work into the program because some of the work is necessarily individual and at the bedside. This enables the teacher to work on the subject matter which the child has failed to get previously, — to explore the area, find his difficulties and clear them up for him. This is most helpful with the child retarded in reading or arithmetic.

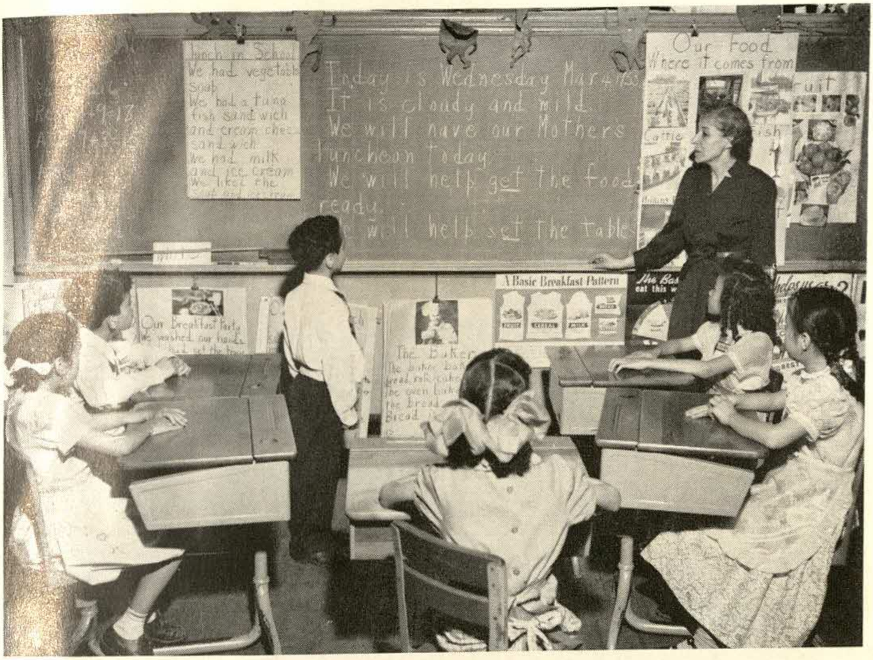
In addition to this individual work, he also is one of a group, usually a multi-grade group, in which he works on units of activity, social studies, language arts, health, art, music, handwork, dramatics, nature study or gardening.

In the classroom the children find much that is interesting. There is the indoor garden, which includes ten seedling trees from the State Department of Forestry. Many objects of interest are displayed around the room. These include large blocks, dolls and doll houses, large toy animals, educational games, and games just for fun, a Noah's ark, a stereoptician, also arts and crafts equipment and many attractive books. Among the larger equipment is a store, also benches for wood working, sand tables, and a piano and a record player, in addition, of course, to school desks, bed desks, and tables to be used with wheel chairs.

Usually there is also a pet, which at present is a canary. Among the pets they have had in school have been rabbits, white mice and guinea pigs (all borrowed from the laboratory), a hamster, a pigeon, and a pair of ring doves. The animals from the laboratory were very satisfactory because when their company palled they could be returned whence they came. Of the others, the canaries and the doves were very good pets and did not require an undue amount of care. All the pets, but especially the rabbits and guinea pigs, which could be handled, gave joy to the children. But they gave the greatest joy to those unhappy little children who, in addition to their physical illness, suffered from some emotional maladjustment.

Since so much is done for the children, the school looks for opportunities for them to do something for others. Junior Red Cross portfolios have been prepared, and gift boxes have been filled for children in Europe. Under the auspices of the Friends Service Committee, they have also filled boxes with toys, food, and outgrown clothing for an orphanage in Holland.

When junior or senior high school students are in the hospital at examination time, it can be arranged for them to take the State Regents examinations. Because of the turnover in school population, the need for the examination is likely to arise unexpectedly. Therefore, an arrangement has been made with a nearby high school to furnish the Hospital with the one or two question papers it may need.



HEALTH CONSERVATION CLASS
Public School 109, New York City

A HOME TEACHER
Oregon Public Schools, Portland, Oregon

ELEMENTARY SCHOOL CHILDREN ATTENDING CLASS AT BELLEVUE HOSPITAL
Public School 401, New York City

LIVING BLACKBOARD PROGRAM FOR HIGH SCHOOL STUDENTS AT BELLEVUE HOSPITAL
Public School 401, New York City

On the day of the examination, a Hospital teacher is at the school to get the examination as soon as the sealed package is opened. She brings it back to the Hospital and proctors the examination either in a classroom or, if necessary, at the bedside. She immediately takes the completed examination to the child's home school, where it is corrected by his teacher. His mark becomes a part of his permanent record.

Adolescent children, including most high school students, are hospitalized in adult wards in the Main Building and the Adult Tuberculosis Building. There has been an occasional one admitted to the Psychiatric Institute. The hospital teachers have tutored them also and proctored their examinations.

In the Main Building the long term patients are largely polio sufferers, with a sprinkling of cardiacs, surgical cases and others. The tuberculosis patients are hospitalized for the longest periods. With the use of the newer drugs in tuberculosis treatment, the length of hospitalization of the average tuberculosis case has been greatly shortened. However, among the school population, the tuberculosis patients are still hospitalized for the longest periods.

By trial and error the school has found out that the average high school student-patient will have time and energy for two, or at the most, three subjects, and that two hours of tutoring per week in each subject is sufficient to keep him up in that subject.

As soon as the doctor approves school work for a patient, the teacher contacts the guidance teacher of his home school. The former explains the possibilities for school work afforded by the Hospital, and asks what areas of study are most essential for the particular patient. Outlines of the suggested subjects and textbooks are furnished by the home school. Sometimes the guidance teacher says that the student needs remedial reading more than anything else. If the patient is a senior high school student, teachers from neighboring high schools are recruited to come in after school to tutor them in the necessary subjects.

If two or more patients require the same subject, they can be taught together, which is, of course, much more interesting and productive than working alone. As soon as high school students in the Tuberculosis Building become ambulant, they come to the classroom in their building. There they have an enriched program of group work, including health study, dramatics, discussion of problems and other subjects of interest to the individual students. They occasionally plan and give birthday parties, short plays, and radio programs for other patients and staff members. They also have many activities available in the occupational therapy department, including oil painting, ceramics, jewelry making, weaving and needlework. The ambulant patients, including the teen-agers, in the Tuberculosis Building have a club which puts on parties and other recreational activities, under the supervision of the Rehabilitation Director. Social workers help them solve their current problems, arrange for 'leaves' for ambulant patients to go shopping or for short visits to their homes.

Sometimes young adults who have left high school without graduating decide that they would like to improve their time in the hospital by studying and getting their high school diplomas. Several have been helped to accomplish this by means of the equivalency examinations. They are directed in their preparation and sometimes tutored. Arrangements are made when they are ready, for them to be taken to and from the place of examination. The Hospital has occasionally purchased correspondence courses in high school subjects from one of the state universities for these adults, and several capable students have been very successful with these courses.

College students who were patients have also been helped by correspondence courses purchased from universities.

For foreign-born adults the Hospital has carried on teaching of English as a second language. For this work they have recruited teachers who teach this subject in nearby night schools. These students have also been aided in applying for citizenship.

Vocational advice is available for all tuberculosis patients. The Grasslands Rehabilitation Director for tuberculosis patients will test and advise, and where indicated, will help patients to secure vocational training. This is done through the New York State Department of Vocational Rehabilitation.

All necessary tutoring, beyond the elementary school, for tuberculosis patients is paid from supplementary funds supplied by the Westchester County Tuberculosis and Public Health Association. The Hospital Service Committee, or in some cases their own local school board, pays for the tutoring of all other high school students. All basic expenses for elementary education are included in the hospital budget.

RESPONSIBILITY OF THE EDUCATOR IN HOSPITAL

ELENA D. GALL

The responsibility of the educator within a hospital may be divided into three major phases: (1) The teacher contributes to the education, treatment, and welfare of the patient. (2) She often initiates and puts into practice new ideas, teaching methods, devices, and techniques to insure a continuous and enriched program of instruction. (3) She offers leadership in professional and community projects which, in turn, improve and expand the methods of treatment and instruction of the hospitalized.

Contribution to the Patient

The teacher contributes to the education, treatment, and welfare of the patient.

Her first objective is to work with the hospital team, — hospital administrators, medical personnel, occupational and physical therapists, speech therapists, medical-social workers, psychiatrists, psychologist, recreational directors, student nurses, hospital librarians, student teachers, and helpful volunteers. She brings about the development of wholesome parental attitudes by conferring with members of the family, teachers, and the medical-social worker even before the child enters the hospital, as well as during his stay.

Many thousands of children enter hospitals every year and are not prepared for the experience they are about to face. A short stay, from an adult's point of view, may seem too brief to deserve great consideration from the emotional point of view. Yet this short stay may well represent the greatest single physical and emotional experience in childhood, one which may affect the child's future security and happiness. Like long-term hospitalization, operations such as tonsils, adenoids, harelip, cleft palate, hernia, congenital heart disease can be planned in advance. Teachers can help parents prepare their children in an honest, considerate way for this experience.

Admission into a hospital imposes and increases tensions and resentment because the individual is removed from that which gives him security, namely, his family and home. The teacher often becomes a substitute mother, and the hospital ward becomes the temporary home. One of the important tasks of the teacher, therefore, is to reach every child, individually or in a group, as soon as possible. She then proceeds to offer long-term and short-term programs based on interviews with teachers, physicians, and parents, and on study of the complete records of each patient to be instructed.

Children and adults in hospitals can learn something every day from each other, their neighbors, nurses, doctors, and visitors, and they can be guided constructively by the educators who have been assigned to teach them. It is the teacher's responsibility to plan a school which has an environment favorable to each individual and conducive to the development of his sense of security and peace of mind. She utilizes special and individual methods of teaching, taking into consideration the mental and emotional needs of both long-term and short-term patients, the deformed and non-deformed, the ambulatory and non-ambulatory. The teacher who is specially trained to work with the hospitalized recognizes the fears and anxieties of children and aims to reassure her patients by encouraging expression and seeing to it that the child is respected and understood as he gradually adjusts to strange surroundings or to pain or isolation.

It has been said that ninety per cent of the time spent in hospitals is characterized by boredom. The teacher contributes to a program of mental therapy when she plans for leisure-time activities with the therapists, the recreational director, and the parents. A well-constructed program of instruction, guidance, and recreation assists in keeping children pleasantly occupied in thought and deed and other means of self expression. The welfare of the adults is also of concern to the teacher. In a recent statement before the Subcommittee on Health of the Senate Committee on Labor and Public Welfare, Secretary Oveta Culp Hobby stated that the majority of the disabled who could be rehabilitated were between the age limits of 14 to 64. About one-tenth (roughly 200,000) are currently confined to various types of institutions, — tuberculosis sanatoria, mental hospitals, and chronic disease hospitals.

Consequently, the team's main job is to keep children and adults happy, get them well as soon as possible, and prepare them to adjust well when they return to their homes. To concentrate on children alone would be a decided loss, since workers in hospitals need to maintain optimum emotional climate to insure good morale and mental hygiene for all concerned. The responsibility of the educator reaches out to adult patients. By doing so, she derives a wealth of information, material resources, and motivation which can, in turn, be used to benefit the children in their daily learning experiences.

Above all, a daily mental stimulus is needed, since patients are subject to mental, social, and emotional setbacks when they are separated from home, their social environment, and from the security of attending school. The hospital teacher attempts to establish as near normal situations as possible, provides a program of study and educational activities for each child within the group, and arranges for comfortable and suitable working conditions. In addition, she brings to the bedside, the hospital classroom, or school alcove the best adapted tools and equipment to make learning both pleasant and meaningful. Consideration must also be given to grouping by age, ability, interest, and length of stay. In all educational planning the teacher, with the help of other personnel, places mental health first on the list of objectives. She utilizes all resources to set an adequate pace for each patient in a balanced program of medical treatment, therapy, work, play, and relaxation.

To continuously acquire and utilize knowledge in order to meet the patient's needs is probably the most arduous task of the educator within the hospital community. First comes the knowledge of the child, his background and development, his potentialities, liabilities, mental capacity, and special abilities in terms of the past, present, and future. Knowledge of the setting in which the teaching process takes place is also very important. What are the physical resources for education? How can other people in the hospital contribute to the program? What is the philosophy of the administrators and other community leaders regarding teaching patients in hospitals? Then comes the need of the knowledge for planning and organization. How many ways are there to plan suitable projects? How flexible can the school programs be? How can the teacher's time be best utilized? How can the available resources best be utilized? How can a program of instruction assist the team in achieving the goal of maximum and total rehabilitation in the shortest possible time?

Often the teacher is consulted regarding classroom facilities. Planning a hospital school building or room is a challenge to the best thinking of educators, hospital personnel, and architects. Democratic cooperative planning results in more functional building and facilities, and thus an improved instructional program. In every hospital where educational programs are in action, there should be at least one multi-purpose room designed to accommodate two or more activities such as exhibits, assemblies, bazaars, parties, club activities, library, etc. Such a room could be used by other groups and, during evenings and week-ends, by lay groups as well as hospital workers. A continuous activity program of this type not only stimulates community interest in a hospital, but extends a variety of socializing opportunities to the hospitalized.

A knowldege of disabilities should be a part of the educator's preparation. It is important to understand physical function limited or unlimited by physiological change, work tolerance, fatigue curves, and other manifestations hidden or apparent in a patient suffering from disease, recovering from disease, or adjusting to disability. Understanding the etiology, treatment, and prognosis of the disease makes the educator a more responsible person in assisting the team to arrive at decisions and recommendations regarding the educational, vocational, social, and personal adjustment of each pupil. By knowing medical terminology, the teacher can communicate more easily with hospital personnel who, for the most part, deal in the area of physical rehabilitation. Whenever teachers are invited to medical conferences, and physicians are asked to share teachers' problems, there results a more practical approach to such childrens' physical and emotional problems.

New Methods and Materials

The hospital teacher often initiates and puts into practice new ideas, teaching methods, devices, and techniques to insure a continuous and enriched program of instruction.

She attempts greater leniency in permitting parents to visit, and encourages warmer relationships between each patient and members of the staff. She collects and provides teaching devices which are already available in regular school buildings. Sometimes she borrows ideas from her colleagues in special classes in schools. With a little carpentry and some ingenuity she produces necessary gadgets like the doll house, the bed box, the nature corner, the museum collection, the homemade movie, the Plymouth chart. She can enlist the aid of community radio and television stations and work with their programs. Notable examples are the New York City programs, "High School of the Air" and "The Living Blackboard", which bring organized information to the homebound and hospitalized. Sharing experiences with children in regular classrooms in schools can be arranged by establishing programs which teach via the telephone. With the aid of the psychological clinic, the occupational therapy department, and the vocational advisory service in her community, the teacher can set up arts and crafts programs which have pre-vocational training implications for the severely handicapped and for those who will, in the future, return to the community.

Since over 3,000,000 children enter hospitals yearly for long- or short-term stays, the educator, with the help of teachers in school, designs enrichment projects for the high school student when the hospital stay is brief. In all her plans, the teacher thinks of the hospital as a place for living, learning, and growing. By her knowledge, skill, and personality, she can gain the cooperation of the hospital administrator and outside agencies. Laboratory courses which are required for high school students can be arranged by the teacher who learns to utilize the facilities in the environment. In hospitals, particularly, there are facilities for scientific research on the high school level.

Long-range programs for the chronically ill offer stimulation and a feeling of security. The resourceful teacher utilizes dramatics, newspaper publishing, and yearly festivals to bridge the gaps between the institution life and its active neighboring community. Patients, in turn, feel the satisfaction of producing and sharing constructive and original programs. Otherwise dull week-ends in hospitals buzz with activity when the creative teacher promotes programs which can be conducted without her presence by the patients themselves or by well-instructed volunteers. Communication, the lifeblood of the hospitalized, can be kept up by educational projects involving newsletters, regular correspondence, and the assignment of patient reporters and interviewers. Above all, the educator increases her hospital staff by interesting students, volunteers, and by "selling" the hospital program to the school administrator.

The teacher contributes to in-service education by cooperating with universities to set up internship opportunities for future teachers of the chronically ill and those with contagious disease. She conducts studies to determine suitable toys, visual aids, and materials for individual patients. She experiments with curriculum areas in relation to constructive use of time, giving preference to periods needed for medical treatment. By devising a modern, friendly way of reporting pupil progress to parents, the educator removes emotional blocks for both parent and child. Prompt and efficient pupil referral, based on case-conference methods, and careful record keeping make for easier transfer of pupils and much needed continuity of educational programs.

PROFESSIONAL AND COMMUNITY LEADERSHIP

The teacher offers leadership in professional and community projects which. in turn, improve and expand the methods of treatment and instruction of the hospitalized.

By visiting nearby recreation centers she plans for future leisure-time activities for patients who will return to their homes. She may even make arrangements for exchange visits whereby patients who are able to travel can present their shows and skits to the so-called normal, and vice versa. When the teacher is invited to speak about her work, she is in an ideal position to select and recruit interested and talented student teachers with skill and emotional maturity to prepare for much-needed careers in hospital teaching.

The educator's interest in legislation and her active participation in professional groups help to establish a legal basis for sufficient financial backing of programs for hospitalized children. In-service training becomes another responsibility of the hospital teacher. At the University of Utah, for example, the teacher is used to head some 200 volunteers who extend her work on the wards and help in explaining the work with polio patients to the residents of Salt Lake City and the entire state.

Hospital programs suffer whenever the hospital teacher becomes isolated from her professional group and from contacts with the home of the child, or from activities of other allied professions. To lecture in the field of child growth and development and to write about the hospitalized for allied professional groups is to keep alive important educational concepts in the minds of those on the hospital team. By working with other agencies as a consultant, active member, or committee chairman, she is able to facilitate, promote, and expand services for the hospitalized. By identifying patient needs and gaps in related services such as employment, training, guidance, recreation, and social welfare, the teacher helps to speed up the process of rehabilitation.

A MODERN MIRACLE*

MARY FRANCES MARTIN

The first School-to-Home Inter-communicating System was installed July 5, 1949, between the Eagle Rock Elementary School in Los Angeles and the home of a boy, named Gordon, suffering from progressive muscular dystrophy. The first time I called on Gordon, I found him sitting in his wheel chair on the path leading to his home, idly watching the ants file past on the sidewalk.

The first day the instrument was installed in the classroom and in Gordon's home, I visited the fifth grade group of eager boys and girls who were to be Gordon's "classmates." I introduced Gordon and his mother to the principal, the teacher and the youngsters in the class, by means of the School-to-Home Inter-communicating System. After the brief formality, the teacher and the pupils went about their routine business. The teacher called the roll. All the boys and girls in the class answered "present." Gordon's name was called and he, too, answered, "present." For all practical purposes, Gordon really was present in the group!

When the first lesson of the day began, I stood for a few moments at the back of the room. Soon, a little boy beckoned to me. I went over to his desk. He said, "Do you mean to tell me that there is a boy in that box?" I said, "No, the boy is at home in his wheel chair, but his voice is coming over a private telephone line into the speaker in your room." The youngster thought a moment; then, very reverently, said, "God, but that is marvelous!"

Device Is a Blessing

Personally, I can think of no better way to describe the blessing to a homebound child that is brought to him by this relatively simple device. From hopeless isolation and loneliness, the child suddenly becomes an active participant in a group of his peers. The interest in the homebound child is inevitable on the part of his classmates. The evening of the day Gordon "entered" the Eagle

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*Used by special permission of the author and *The California Parent-Teacher Magazine*

Rock Avenue School, via telephone, two boys took "French Leave" and went to call on him at his home. On subsequent days, they dropped by to bring him a book or art materials. The class was studying the National Parks. The three best paintings of the parks were displayed in an art exhibit. The teacher and the members of the class were delighted when Gordon's painting was one of the three selected for this honor!

The first experiment was considered an unqualified success by all who observed the system in operation.

From 1951 to the present, several additional homebound children in the neighborhood of the Harlan Shoemaker School were given the benefit of "attending school," although confined to home on their doctors' orders.

Impressed by the great value of this system to both handicapped and normal children, the Board of Education of the Los Angeles City Schools voted unanimously and enthusiastically to extend the School-to-Home Intercommunicating System on a city-wide basis this school year.

His Life Is Changed

Today I visited Donald. He lives in a modest home in the San Fernando Valley with his parents and eight brothers and sisters. Seven of the nine children were stricken with polio during the last epidemic. All have recovered fully, except Donald. He has just undergone a spinal operation and is in a body cast. Until the "magic box" was installed in Donald's bedroom, he had little interest in life. He saw no reason to get up in the morning. "Now," says his mother, "he is a different boy!" He cannot wait to get up in the morning, so he can "tune in" on his class at the Charles LeRoy Lowman School. He is now a happy boy! He also is making marked progress physically and educationally.

David is "hooked up" to school on the same line as Donald. They are "phone pals." Every morning they "tune in" to school together; and after school they study and visit together over their own private line. Donald and David also "attend" Boy Scout meetings together with their friends at school. Their parents "attend" the Parent-Teacher meetings held at school in the evenings, and have become good friends. David, who is suffering from an illness similar to muscular dystrophy, has taken a new lease on life! He also used to lie in bed all day. Now, he is up and dressed and ready for school at eight o'clock each school day. The color has come back into his cheeks and the sparkle has returned to his eyes!

Donald and David have different home teachers. Both of them are enthusiastic about the progress the boys have made in their academic work since they have been able to "attend school" every school day.

No Bad Effects Found

Some physicians have questioned whether the School-to-Home telephone might be overly tiring or stimulating, particularly in cardiac cases. In Iowa, where more than 1500 youngsters have received all or part of their education by telephone, a Department of Public Instruction survey showed that in actual experience these fears were groundless.

Reporting on the survey, Mr. J. A. Richards, Director of the Special Education Division of Executone, Incorporated, explained that the doctors questioned "almost unanimously hailed both the psychological and therapeutic advantages of the method." Many felt that recovery was hastened by rekindling the interest and awareness of the child.

Homebound and hospitalized children with a wide variety of afflictions—cardiac, orthopaedic, muscular, tubercular—have been taught by telephone. A problem in many cases is that the doctor may not be able to predict how long a child will be out of school, and the parents and the school may delay making telephone arrangements until it is too late to bother. Usually this can be avoided if the school personnel confers with the family physician at the beginning of the child's illness.

NORMAL EDUCATIONAL PROGRESS

While the social, psychological and therapeutic values of telephone teach- will move equipment within that period from one student to another, charging ing cannot be overestimated, the educational effectiveness of this technique is best measured by the fact that average students thus taught are able to keep right up with the normal pace of their class. Some, in fact, have earned even better grades than when they attended school in person, prior to their illness.

The cost of the School-to-Home telephone service, which is provided on a rental basis by the Pacific Telephone and Telegraph Company, averages between $15 and $25 a month, depending upon the distance between the home and school units and the number of classroom connections involved.

Most telephone companies, notwithstanding a six month minimum contract, only the cost of reinstallation. Since rates vary in different localities, the actual installation, rental and wire charges can be obtained only from the local telephone company.

WIDESPREAD USE

Telephone teaching is being carried on in thirty states, with California one of the more recent converts. In twenty-three states which have programs for special education for handicapped children, this method has been approved for partial or full state aid. Elsewhere, various organizations, including service clubs and foundations for the handicapped, help to underwrite the cost. We in California, who recognize the important educational and social values of this teaching method, look forward to the time when it is approved for state aid on the same basis as the present one hour a week for home instruction.

Surely none of us would agree that one hour or even two hours a week of schooling is sufficient. However, by means of the School-to-Home Intercommunicating System, at a cost to the school district of little more than the cost of an additional hour of home teaching, we would be able to provide the afflicted child an additional twenty-four extra hours of as near to normal schooling as anyone has been able to devise. This, certainly, should be the goal for all of us who are interested in educating the homebound child.

THE HOME INSTRUCTION STUDENT*

MARION MARTIN

At the beginning of 1950, the High School Home Instruction Unit of the Division of Physically Handicapped Children of the New York City Board of Education, and the School Unit Service of the Division of Vocational Rehabilitation, New York City Office of the New York State Department of Education, began a cooperative service to assist in the vocational adjustment of students on home instruction.

Prior to that time, individual students were assisted toward a vocational goal by the Division. This experience showed that many home instruction students were not permanently home bound and their adjustment to the world outside the home should be a gradual process beginning during the days on home instruction. It was also felt that early counseling would be of value in assisting the transfer of students from home instruction to regular high school. Further, it was felt advisable to have an early evaluation of those permanently home bound as to the possibility of home employment.

PURPOSE

The purpose of this service was threefold: (1) In what way could the home instruction student become a self-sustaining member of the community by means of existing facilities. (2) What other facilities were needed within and without the Board of Education. (3) Evaluate as early as possible the group termed "limited to employment at home" or "unemployable."

It was thought that service prior to high school graduation might bring about an early re-entry into the community and vocational adjustment. In order for this plan to be effective, a close relationship was maintained with the various health services of the community, including the Division for Physically Handicapped Children, New York City Department of Health and other health and hospital agencies as well as many of the community services for the handicapped.

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*Used by special permission of the Board of Education, City of New York, and the author, Senior Rehabilitation Counselor.

GROUP SERVICED

About two hundred and seventy students received a letter from the Division of Vocational Rehabilitation or were told by their home instruction teacher about possible service. Caution was used in this contact in order that false hopes would not be given to the severely disabled and so that the student would not feel application was compulsory or that it would bring about the realization of all personal dreams including many years of college or professional training.

Two groups of students were excluded from the initial contact: (1) students on hospital home instruction; (2) students with temporary disabilities who require home instruction for short periods and who will not have a permanent vocational handicap upon recovery.

Some contact beyond the initial letter was made with about two hundred and fifty students. The majority of this group made application for service; those that could coming to the office in person, and those that were unable to travel by public transportation were interviewed by the counselor at home. Medical reports, school records and teacher evaluations and other necessary data were secured before the counseling service began. In some instances, consultations by telephone or in person were held with physicians and other treatment sources before acceptance or a tentative plan could be drawn up. Occasionally contact with parents or physicians resulted in non-acceptance for service because it would be harmful to the student who physically or mentally was unable to make any vocational adjustment.

NUMBER, AGE AND DISABILITY DISTRIBUTION

Number covered by the study was two hundred and forty-six.

Age Group:	Number of students
14 through 16	46
17 through 20	192 (about evenly divided in each age)
21	8

There was a very wide range both as to the nature and cause of the conditions. The greatest were the orthopedically handicapped, the cardiac group were the next major classification. There was another group which might be termed general pediatric conditions, and the last the emotional and neurological.

Groups	Number of Students
1. Orthopedics	117
2. Cardiacs	60
3. Miscellaneous - which included asthma, ulcerative colitis, hemophilia, nephrosis, anemia, vision and hearing.	44
4. Pulmonary Tuberculosis	8
5. Epileptics	8
6. General neurological	5
7. Emotional - mainly those popularly termed "school phobia"	4

The cause of the orthopedic disabilities varied widely, poliomyelitis was the largest single cause accounting for about forty-five cases, cerebral palsy for about eighteen, bone tuberculosis, club feet, spina bifida, bone fragilities, congenital malformations, amputations, osteomyelitis and muscular dystrophy.

In reviewing this group we find not only the typical lay picture of the student in a wheel chair but disabling conditions visible and nonvisible, in each case so severe as to prevent classroom attendance either because of physical or emotional factors or both. In the majority of cases vocational adjustment outside the home appeared possible. The exceptions were: (1) rapidly progressive conditions causing substantial deterioration or a short life expectancy; (2) complete lack of function in all extremities, blurred speech.

TREATMENT

Students were under care with private physicians, both specialists and general practitioners, and with the out patient departments of many hospitals.

The general pediatric group and cardiac were more likely to be under private care than the orthopedic.

Evaluation as to future employability, review as to follow up on suggested treatment was arranged through the cooperation of attending physicians and hospitals and with the permission of the parents.

RELATION OF VOCATIONAL PLANNING TO TREATMENT

In some cases the individual and the parent were unwilling or had neglected to follow medical advice which would enable the student to arrive at maximum rehabilitation. When the vocational problem was brought into the picture, it helped to adjust this except in a very few cases which were rejected. In a few cases many months of counseling were necessary before the student could see the necessity of receiving maximum physical restoration before vocational planning could be realistic.

THE MEDICAL PICTURE

As this report is written by lay men no attempt is made at medical evaluation. There is one comment; through the efforts of the Board of Education, Department of Health and the Division of Vocational Rehabilitation, the situation is constantly improving in regard to treatment. There appears to be a very small percentage who are not receiving treatment or check up. In a few instances of seriously involved cerebral palsied where many resources have been tried unsuccessfully parents and patients have found treatment of little use.

Services-Division of Vocational Rehabilitation

1. Evaluation
2. Counseling
3. Psychological Testing:
    Tests Administered:
        a. Otis Test of Mental Ability
        b. Columbia Vocabulary Test

   c. Thurstone Clerical Test
   d. Hundred Problem Arithmetic Test
   e. Revised Minnesota Paper Form Board Test
   f. Bennett Test of Mechanical Comprehension
   g. Finger Dexterity Test
   h. Tweezer Dexterity Test
   i. Beta Examination

4. Vocational service.
5. Physical Restoration service. (Physical restoration service either by the Division or in cooperation with the Division for Physically Handicapped Children when there is a suitable objective.)

Current Status

Placement after Training. One of the major services of Vocational Rehabilitation is to give vocational training in order to make a person employable. Many of the home instruction students have been and will be provided with additional vocational training outside the school system. The range of training is dependent on the abilities and interests of the individual and the employment potentialities in the area. During the period from January to September 1, 1951 thirty-one persons formerly home instruction students after training under the auspices of the Division of Vocational Rehabilitation were placed. This training was given in a variety of institutions in the New York City Area. Training sources ranged from special schools, state institutes and professional schools to trade schools, commerical schools and rehabilitation centers. We are listing the area of training and the number of people in each.

Training Area	No. students given training
1. Librarian	1
2. Medical Technician	1
3. Medical Assistant	2
4. Art	1
5. Dressmaking	1
6. Wood Carving	1
7. Sewing Machine Operation	1
8. Radio Technician	2
9. Mechanical Assembly	4
10. Clerical (stenography, business machines, etc.)	16
11. Rehabilitation Center	1

In many instances, it was necessary to have longer training periods than usually given to other clients of the comparable age group.

In a few instances, it was important that employment training in addition to the private training be given before they could enter into the competitive employment market. In a few cases, it was also necessary to arrange for physical restoration service.

Two factors were noted: (1) gradual build up of work tolerance was necessary; (2) it was important that they learn to make an emotional adjustment to working with a group of people.

Number Placed without Training. During this period sixteen students secured employment without training. Some because of their preparation by home instruction in the commercial field; others because the most suitable adjustment would be a short training period in connection with their employment. Two students married and expect to be out of the labor market. Three students are awaiting employment after training.

Currently Engaged in Training. During this period several other students have entered into various phases of vocational training or conditioning.

Thirteen as of September 1951 are in attendance at Municipal colleges with a variety of vocational objectives. Four of this number will need special transportation to the college under the arrangements of the City and State Department of Education. One student who is no longer covered under the Board of Education regulations because she arrived at her twenty-first birthday is receiving aid from the Division of Vocational Rehabilitation for the special transportation. The others are able to travel by regular transportation.

The vocational objectives among this group differ widely: science, business administration, social science, and speech therapy are among the desired employment objectives at the end of training.

As of September 1951, three are attending private colleges, two of whom are financed in part by the Division of Vocational Rehabilitation. Special circumstances have permitted the Division to assist the students attending a tuition charging school rather than a municipal school. This is a rather unusual situation.

As we review the college problem, we find that two of the students are the holders of regents scholarship awards. The disability range of this group is extremely wide and the degree of disability has varied widely. There are five students confined to wheelchairs, three cardiacs, one pulmonary tuberculosis, one hemophiliac, one ulcerative colitis; the remainder are polios using crutches and braces.

A very serious degree of thought was necessary on the part of the counselor before college was advised as there must be a safe guard that college is not another way for severely disabled individuals to spend four years without reaching the point of vocational participation.

The new state institutes have been found to be most helpful in training. As of September 1951 eight students are currently in attendance with vocational objectives in mechanical technology, medical technology, retail distribution and art. Again there is a wide range of disabilities — orthopedically handicapped from polio, tuberculosis of the bone; cardiac, asthma, and ulcerative colitis.

Three are enrolled in art training which includes commercial design and fashion illustration.

Fifteen students are enrolled in a variety of private schools in the community.

Training	Number of students enrolled
Mechanical Dentistry	1
Radio Repair	1
Mechanical Assembly	2
Beauty Culture	1
Rehabilitation Center	2
Clerical Training	8

High School	Number of students enrolled
Returning to high school or being admitted (students have returned or been admitted for the first time to regular high school and will be followed through until they are satisfactorily employed).	16
Remaining on Home Instruction (29 students are on home instruction and will continue to receive counseling service until graduation at which time it is hoped that they can be employed or engage in training.	29
Services Pending	**Number of students**
Physical Restoration Service Pending (the purpose of this is to enable the person to travel by regular transportation)	2
Pending training (10 are expected to begin their training within the next month in a number of different occupations.	10
Medical Evaluation (students who are graduates are now undergoing medical workup to determine their work tolerance or their ability to travel and function in an employment situation)	9
Special Follow-up	
Sixteen students who have now graduated from home instruction are under special consideration to see if any employment either at home or in the neighborhood can be found for them. They are severely disabled and there is a limitation of function in the upper as well as lower extremities; in some the speech is affected.	16

The ultimate results of this group will be particularly interesting as it will determine in part what facilities are necessary either in the sheltered work shops or otherwise, and also whether it is possible to secure suitable employment for individuals who emotionally and intellectually are average or above average but whose degree of physical impairment is such that they can not function adequately in a competitive situation. Part of the problem of this group is that there are many limitations in the field of industrial home work.

One hundred and seventy-four persons have successfully adjusted or are in process of adjusting to the community.

Rejected

Reasons for Rejection	Number rejected
Degree of disability	28
Transfer to blind agency	1
In hospital	1
Temporarily withdrew from labor market	1
Medical treatment	1
Under service with community agency	2
Refused to follow medical or vocational counsel	1
Left State	3
Declined service	1
Failed to follow-up	13
Tempory disability - no vocational handicap	14
Deceased	4
	3

In the rejected groups we have a variety of disabilities. Five of the twenty-eight were epileptics, which is rather understandable as epileptics who are under good medical control and therefore employable are usually able to be enrolled in regular schools. Eight of those rejected fell in the cerebral palsy group. Again we would have a group rejected which was mainly quadplegias. The others fall into a variety of ataxias and severe cardiacs.

SOCIAL AND ECONOMIC STATUS

It is thought to be of interest by many as to the background and place in the community of the various families. These young people have come from every walk of life in the city. The economic status ranges from those wholly dependent on public welfare to a group where the parents are in the high income brackets. The range of occupations is as varied as the number of occupations engaged in in the city. We have representation from all groups. In some instances, they are only children and in others they are from very large families.

COMMENTS

It is difficult to say whether the small percentage of rejections among the total referrals will continue to hold after the entire group are made known to us. Possibly we should add to the rejected group some of those who declined service because the family knew that the person was unable to function. (It is important to note that many of the students now on home instruction can eventually enter an occupation.)

We also found that many students who previously thought that their employment possibilities were limited to their home, found after a period of counseling relationship and conferences with the Board of Education and other agencies that training and employment outside the home was possible.

We must also realize that some students would be employable without any additional service and they were among the group who declined service.

There is a very definite attempt to give to the students sufficient training to enter the labor market and to remain employed. There has not been any effort to train at the maximum capacity of the individual as it is felt that for many fields of work, training will be a continuous process which the individual can later enter upon under his own auspices when he becomes an independent member of the community.

It has been necessary to work in liaison with physician to interpret the training area to the physical limitation. A job analysis presented to the physician sometimes has resulted in approval for full time rather than part time employment.

The cases under consideration in this report were counseled in the Division of Vocational Rehabilitation School Unit.

RECOMMENDATIONS

1. Bring to the student a realistic picture of three factors:
    a. His relationship to normal academic standards.
    b. Amount of time usually required for subject preparation as against time needed for his preparation.
    c. Performance standards in normal classroom activity.

2. Stress necessity of ability to travel by public transportation.
3. Travel orientation by explaining methods and routes, in addition to rehabilitation training in travel.
4. Consider home employment only for those who can not be employed outside the home.
5. Standards for industrial home work and independent business possibilities be made known to teaching staff.
6. Teacher training — Continue to emphasize industrial and vocational needs of new entrants into labor market.
7. Emphasis on reading and vocabulary which lack seems to have been increased by the absence of classroom competition in training. Vocational training should also be considered in the home instruction curricula. These courses should be of high school standards rather than on a craft-therapy basis.
8. Make known to attending physician possibility of special bus transportation to high school to assist in his final recommendations.
9. Screening and medical review prior to Division of Vocational Rehabilitation referral for the type of case that has previously been rejected.
10. Research project to explore employment possibilities for the group so seriously disabled that even home employment is questionable. It must be done by an agency whose work is not measured in terms of successful employment at the conclusion of service which is the case of Division of Vocational Rehabilitation.

AGENCIES FOR HOMEBOUND AND HOSPITALIZED

PUBLIC AND PRIVATE AGENCIES PROVIDING TRAINING AND EMPLOYMENT FOR HOMEBOUND*

Alabama: State Division of Vocational Rehabilitation; Alabama Institute for Deaf and Blind
California: Local affiliates of the National Society for Crippled Children and Adults, Inc., in Los Angeles, Riverside, and San Mateo Counties; Braille Institute of America, Inc., Los Angeles; San Francisco Association for the Blind; State Division of Vocational Rehabilitation, Los Angeles district
Connecticut: State agency for the blind; State affiliate of NSCCA
Delaware: State agency for the blind
Florida: State agency for the blind; Lions Industries for the Blind, Inc., West Palm Beach
Georgia: Georgia Association for the Blind; Georgia Factory for the Blind, Bainbridge
Idaho: State agency for the blind
Illinois: Chicago and North Shore Cook County Society of NSCCA
Indiana: State Agency for the blind
Iowa: State agency for the blind; State affiliate of NSCCA
Kansas: State agency for the blind
Maine: State agency for the blind; Pine Tree Society of NSCCA; Sunset Industries, Inc.
Maryland: State Workshop for the Blind, Baltimore
Massachusetts: State agency for the blind; Community Workshops, Inc., Boston
Michigan: State agency for the blind; Detroit League for he Handicapped, Inc., State affiliate of NSCCA
Minnesota: State Division of Vocational Rehabilitation, and Minnesota Homecrafters, Inc.; Minneapolis Society for the Blind, Inc.
Mississippi: State agency for the blind
Missouri: State agency for the blind
Montana: Montana Association for the Blind
New Hampshire: Local affiliates of NSCCA, including the Crotched Mountain Foundation, Manchester; New Hampshire Association for the Blind, Concord
New Jersey: State agency for the blind
New York: State agency for the blind; Brooklyn Bureau of Social Services & Children's Aid Society, Brooklyn; Federation of the Handicapped, New York; Saranac Lake Rehabilitation Guild Inc., Saranac Lake; numerous private associations for the blind in New York and other cities throughout the state
North Carolina: State agency for the blind
Ohio: State agency for the blind; Goodwill Industries, Dayton; Columbus Society of NSCCA; Shut-In Society of Cincinnati; Cleveland Rehabilitation Center; private associations for the blind throughout the State
Oklahoma: State Division of Vocational Rehabilitation; Oklahoma League for the Blind
Oregon: State agency for the blind; State Society of NSCCA

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*Adapted from *Study of the Homebound* (U.S. Department of Health, Education and Welfare: Washington, D.C., 1955).

Pennsylvania: State agency for the blind; Numerous local affiliates of the Pennsylvania Association for the Blind, Inc.; Pennsylvania Branch of the Shut-In Society, Philadelphia; Philadelphia and Erie Societies of NSCCA
Rhode Island: Community Workshops of Rhode Island, Inc.; Rhode Island Association for the Blind, Providence
South Carolina: State agency for the blind
Tennessee: State Division of Vocational Rehabilitation
Texas: State agency for the blind; numerous county associations for the blind
Utah: State agency for the blind
Vermont: State agency for the blind
Virginia: State Society of NSCCA; State agency for the blind
Washington: State agency for the blind
Wisconsin: State Division of Vocational Rehabilitation, in conjunction with State Society of NSCCA; State agency for the blind

SHELTERED WORKSHOPS HAVING HOMEBOUND PROGRAMS*

Connecticut
  New Haven Goodwill Industries: telephone soliciting
Georgia
  Georgia Association, Workers for the Blind, Atlanta: assembling wood baskets
  Georgia Factory for the Blind, Bainbridge: mat making, rug making
  Georgia Factory for the Blind, Griffin: rug making
Illinois
  Chicago Metropolitan Unit of Illinois Association for the Crippled, Inc., Chicago: Typing, sewing and embroidering, making paper flowers and assembling paper favor cups; goggle straps; nails in envelopes, postage stamps, and placing decals on plastic cups
Iowa
  Iowa Society for Crippled Children and the Disabled, Des Moines: typing; contract
Kansas
  National Handicapped Foundation, Wichita: contract
  Kansas Foundation for the Blind, Wichita: chair caning; making pot holders, cotton mops
  Kansas Industries for the Blind - Topeka
Louisiana
  Goodwill Industries of New Orleans: telephone soliciting
Massachusetts
  Community Workshops, Inc., Boston: stitching complete garments, cotton hospital supplies, waitresses uniforms, etc.
Michigan
  Detroit League for the Handicapped: hand and machine sewing for local retail sale; wiring and stringing tags, hand assembly eye sponges and sweat bands; industrial machine sewing
Minnesota
  Minnesota Homecrafters, Inc., Duluth: setting pockets in sweaters, tipping mittens and gloves, embroidering mittens and gloves
  Minnesota Homecrafters, Inc., Minneapolis (headquarters office): embroidering ski parkas; typing and stuffing envelopes
Missouri
  Occupational Therapy Workshop, St. Louis: typing; lacing moccasins.
Nebraska
  Lincoln Goodwill Industries, Lincoln: promotion

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*Adapted from *Study of the Homebound* (U.S. Department of Health, Education, and Welfare: Washington, D.C., 1955). These workshops are certified by the U.S. Department of Labor.

New Hampshire
- Crotched Mountain Foundation, Manchester: lily making project.
- New Hampshire Association for the Blind: filling preparation stitching; woodworking; chair-seating; pomander making;, knitting; crocheting; weaving; fringing; basketry; tassel making; door mat making

New Jersey
- Goodwill Industries of New Jersey, Jersey City: promotion by phone

New York
- Albany Association of the Blind, Inc.: machine sewing
- Blind Work Association, Inc., Binghampton: machine sewing; crocheting mitts; hand hemming; fringing; finishing knitting bags; winding of yarn over wire frame - toy lambs
- Brooklyn Bureau of Social Service & Children's Aid Society, Brooklyn: assembly work; jewelry assembly work; electric assembly; hand sewing; bureau mailing service; hand crocheting
- Central Association for the Blind, Inc., Utica: weaving rugs, mats; hand hemming of tablecloths
- Elmira Association for the Blind, Elmira: weaving rag rugs
- Federation of the Handicapped, New York: slip-stitching; typing
- Goodwill Industries of New York, Inc., New York: telephone solicitation
- Industrial Home for the Blind, Brooklyn: this establishment houses woodworking and handle departments, also mat dept.; type of homework is not specifed in application
- New York Association for the Blind, Occupational Department, New York: knitted outerwear; knitted gloves
- Rochester Rehabilitation Center, Inc., Rochester: sewing
- Saranac Lake Rehabilitation Guild: this is a contract garment shop; type of homework is not specified in application

Ohio
- Toledo Society for the Blind, Toledo: weaving pot holders; home sewing; small items for local retail sale
- Goodwill Industries of Dayton, Dayton: fanfold and string tags; sort conveyor cards

Pennsylvania
- Pennsylvania Branch, Shut-in Society, Philadelphia: assemble pencil sharpeners; wire safety pins; card and pack plastic toys; hand finish finger cots; card snaps, loop anl knot tags; assemble and pack plastic hangers and eyelets; hand address envelopes; cut and stack labels; make bows for greeting cards; assemble and stack bath stoppers

Rhode Island
- Community Workshop of R.I., Inc.: plier work; jewelry

Texas
- Goodwill Industries of Dallas, Dallas: telephone soliciting; make quilts; fold Goodwill bags; and mate stockings
- Goodwill Industries of Fort Worth, Fort Worth: telephone soliciting; assembling badges
- Goodwill Industries of San Antonio, San Antonio-
- Dallas County Association for the Blind, Dallas (white clients): make a variety of articles, including pot lifters, dolls, clown bean bags and fly swatters
- Harris County Association for the Blind, Houston -
- Travis County Association for the Blind, Austin: chair caners
- Lighthouse for the Blind of Fort Worth, Fort Worth: sews ironing board covers

PRIVATE ORGANIZATIONS—SERVING HOMEBOUND AND HOSPITALIZED

Adult Education Association of the USA, 743 North Wabash Ave., Chicago 11, Ill.

Alabama Society for Crippled Children and Adults, 472 South Lawrence St., Montgomery, Ala.

AGENCIES FOR HOMEBOUND AND HOSPITALIZED

American Association for Health, Physical Education and Recreation, 1201 16th St., N.W,. Washington, D.C.
American Cancer Society, 47 Beaver St., New York 4, N. Y.
American Congress of Physical Medicine and Rehabilitation, 30 N. Michigan Ave., Chicago 2, Ill.
American Council on Education, 1785 Massachusetts Ave., N.W., Washington, D.C.
American Farm Bureau Federation, 423 13th St., N.W., Washington, D.C.
American Federation of Labor, 901 Massachusetts Ave., N.W., Washington, D.C.
American Federation of the Physically Handicapped, 1370 National Press Building Washington 4, D.C.
American Foundation for the Blind, 15 West 16th St., New York 11, N.Y.
American Hearing Society, 817 14th St., N.W., Washington 5, D.C.
American Heart Association, 1775 Broadway, New York 17, N.Y.
American Legion, 700 N. Pennsylvania St., Indianapolis 6, Ind.
National Rehabilitation Commission American Legion, 1608 K St., N.W., Washington 6, D.C.
American Library Association, 50 E. Huron St., Chicago 11, Ill.
American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.
American National Red Cross, 17th & D Sts., N.W., Washington 13, D.C.
American Occupational Therapy Association, 33 W. 42nd St., New York, N.Y.
American Physical Therapy Association, 1790 Broadway, New York 19, N.Y.
American Veterans Committee, 1751 New Hampshire Ave., N.W., Washington 9, D.C.
American Veterans of World War II, 1710 Rhode Island Ave., N.W., Washington 6, D.C.
American Vocational Association, 1010 Vermont Ave., N.W., Washington, D.C.
Arkansas Enterprises for the Blind, Inc., Welfare Building, Little Rock, Ark.
Arthritis and Rheumatism Foundation, 23 W. 45th St., New York 19, N.Y.
Association for the Aid of Crippled Children, 345 E. 46th St., New York, N.Y.
Baruch Center of Physical Medicine and Rehabilitation, Medical College of Virginia, Richmond, Va.
Bay State Rehabilitation Center of Western Massachusetts, Springfield, Mass.
Blinded Veterans Association, Inc., 3408 Wisconsin Ave., N.W., Washington 16, D.C.
Buffalo Association for the Blind, 864 Delaware Ave., Buffalo, N.Y.
California Institute of Physical Medicine and Rehabilitation, 2600 Alameda St., Vallejo, Calif.
Catholic War Veterans of the USA, 1012 14th St., N.W., Washington 5, D.C.
Chicago Lighthouse for the Blind, 3323 West Cermak Rd., Chicago, Ill.
The Cleveland Rehabilitation Center, 2239 E. 55th St., Cleveland, Ohio.
Commission on Chronic Illness, 615 N. Wolfe St., Baltimore, Md.
Council of Jewish Federations and Welfare Funds, 165 W. 46th St., New York 36, N.Y.
Crossroads Rehabilitation Center, 3001 N. New Jersey St., Indianapolis 5, Ind.
Crotched Mountain Foundation, Manchester, N.H.
Curative Workshop of Green Bay, 1001 Cherry St., Green Bay, Wis.
Curative Workshop of Milwaukee, 750 N. 18 St., Milwaukee, Wis.
The Curative Workshop of Racine, 2335 Northwestern Ave., Racine, Wis.
Dade County Society for Crippled Children, 159 Northeast 51st St., Miami, Fla.,
Davison Technical School, Inc., Woodward at Grant Ave., (H.P.) Detroit 3, Mich.
Delaware Curative Workshop, 16th and Washington Sts., Wilmington, Del.
Disabled American Veterans, 1423 E. McMillan St., Cincinnati 6, Ohio.
The Easter Seal Rehabilitation Center, 3114 E. Chandler Ave., Evansville 14, Ind.
Epilepsy Association of New York, 129 E. 52nd St., New York 22, N.Y.
Equitable Life Assurance Society of the U.S., 393 Seventh Ave., New York 1, N.Y.
Essex Co. Service for the Chronically Ill, 1004 Broad St., Newark, N.J.
Family Service Association of America, 192 Lexington Ave., New York 16, N.Y.
Florida Council for the Blind, Adjustment Training Center of Holly Hill, Daytona Beach, Fla.

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*Adapted from *Study of the Homebound* (U.S. Department of Health, Education and Welfare: Washington, D.C., 1955).

General Conference of Seventh Day Adventists, 6840 Eastern Ave., Tacoma Park 12, Md.
George Washington University, Medical Integration and Rehabilitation Unit, 22nd & Pennsylvania Ave., N.W., Washington, D.C.
Gonzales Warm Springs Foundation for Crippled Children, Gonzales, Texas.
Goodwill Industries of America, 1222 New Hampshire Ave., N.W., Washington, D.C.
Grand Rapids Rehabilitation League, 555 Houseman Building, Grand Rapids 2, Mich.
The Hartford County Rehabilitation Workshop, 680 Franklin Ave., Hartford, Conn.
Hogg Foundation for Mental Hygiene, University of Texas, Austin, Texas.
Illinois Association for the Crippled, 816 E. Edwards St., Springfield, Ill.
Indiana Society for Crippled Children, 6055 College Ave., Indianapolis, Ind.
Industrial Home for the Blind, 520 Gates Ave., Brooklyn, N.Y.
Industrial Home and Division for the Blind, 1900 S. Marshall Blvd., Chicago, 23, Ill.
Institute of Physical Medicine and Rehabilitation, 619 N Glen Oak Ave., Peoria, Ill.
International Council for Exceptional Children, 1201 16th St., N.W., Washington, D.C.
Iowa Society for Crippled Children and the Disabled, 2920 30th St., Des Moines, Iowa.
Jewish Occupational Council, 1841 Broadway, New York 23, N.Y.
Jewish War Veterans of the USA, 1712 New Hampshire Ave., N.W., Washington, D.C.
Kansas Rehabilitation Center for Adult Blind, Topeka, Kans.
Curative Workshop, Kentucky Society for Crippled Children, 840 South Third St., Louisville 3, Ky.
Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, N.J.
Lake Tomahawk State Camp, Lake Tomahawk, Wis.
Liberty Mutual Insurance Company, 175 Berkeley St., Boston 17, Mass.
Life Insurance Association of America, 488 Madison Ave., New York 22, N. Y.
May T. Morrison Center for Rehabilitation, 1680 Mission St., San Francisco, Calif.
Methodist Church, Board of Hospitals and Homes of the, 740 Rush St., Chicago 11, Ill.
Metropolitan Atlanta Association for Colored Blind, 293 Sunset Ave., N.W., Atlanta, Ga.
Metropolitan Life Insurance Co., 1 Madison Ave., New York 10, N.Y.
Minneapolis Curative Workshop, 2515 Nicollet Ave., Minneapolis, Minn.
Minneapolis Society for the Blind, 1936 Lyndale Ave., South Minneapolis 5, Minn.
Miriam Convalescent Rehabilitation Center, 501 Bacon St., Webster Groves, Mo.
Mobility Incorporated, 10 Heatherbloom Rd., White Plains, N.Y.
Muscular Dystrophy Associations, 39 Broadway, New York 6, N.Y.
National Association for Mental Health, Inc., 1790 Broadway, New York 19, N.Y.
National Association for Retarded Children 129 E. 52nd St., New York 22, N.Y.
National Association on Sheltered Workshops and Homebound Programs, 15 W. 16th St., New York 11, N.Y.
National Catholic Welfare Conference, 1312 Massachusetts Ave., N.W., Washington 5, D.C.
National Conference of Catholic Charities, 1346 Connecticut Ave., Washington 6, D.C.
National CIO Community Services Committee, 1776 Broadway, New York 19, N.Y.
National Epilepsy League, 130 N. Wells St., Chicago 6, Ill.
National Farmers Union, 1417 California St., Denver 2, Col.
National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N.Y.
National Grange, 744 Jackson Pl., Washington 6, D.C.
National Health Council, 1790 Broadway, New York 19, N.Y.
National Home Study Council, 1420 New York Ave., N.W., Washington, D.C.
National Industries for the Blind, 15 W. 16th St., New York, N.Y.
National League for Nursing, 2 Park Ave., New York 16, N. Y.
Division of Welfare, National Lutheran Council, 231 Madison Ave., New York 16, N.Y.
National Multiple Sclerosis Society, 270 Park Ave., Suite 7G, New York 17, N.Y.
National Recreation Association 315 Fourth Ave., New York 10, N.Y.
National Rehabilitation Association, 1025 Vermont Ave., N.W., Washington 5, D.C.
National Rehabilitation Commission, American Legion, 1608 K St., N.W., Washington 6, D.C.
National Social Welfare Assembly, 345 E. 46th St., New York 17, N.Y.
National Society for Crippled Children and Adults, 11 S.LaSalle St., Chicago 3, Ill.

National Tuberculosis Association, 1790 Broadway, New York 19, N.Y.
National University Extension Association, Bloomington, Ind.
New York Association for the Blind, 111 E. 59th St., New York 22, N.Y.
The Occupational Therapy Workshop, 608 N. Spring Ave., St. Louis, Mo.
Rehabilitation Coordinator, The Ohio Citizens' Council for Health and Welfare, 167 E. State St., Columbus 15, Ohio.
New York State Rehabilitation Hospital, W. Haverstraw, N.Y.
Ohio State University Rehabilitation Center, Ohio State University, Columbus, Ohio.
Oakland Orientation Center for the Blind, 3601 Telegraph Ave., Oakland, Calif.
Oklahoma A & M College, The Rehabilitation Center, Okmulgee, Okla.
Orthopedic Appliance and Limb Manufacturers Association, 411 Association Building, 1145 19th St., N.W., Washington 6, D.C.
Paralyzed Veterans of America, 101 Hay Ave., Nutley 10, N.J.
Pennsylvania Working Home for Blind Men, 36th Street and Lancaster Ave., Philadelphia, Penn.
Philadelphia Society for Crippled Children and Adults, 2000 S. College Ave., Philadelphia, Penn.
Portland Rehabilitaion Center, 1615 Southwest 14th Ave., Portland, Oregon.
Division of Welfare Agencies, Board of Pensions of the Presbyterian Church of the U.S.A., Witherspoon Building, Philadelphia 7, Penn.
Rehabilitation Center, 418 Martin Brown Building, Louisville 2, Ky.
Rehabilitation Center of Hawaii, 226 N. Kuakini St., Honolulu 17, Hawaii.
Rehabilitation Center for the Physically Handicapped, 20 Wall St., Stamford, Conn.
The Rehabilitation Institute, 3600 Troost St., Kansas City, Mo.
Rehabilitation Institute, 8811 Hamilton Ave., Detroit 2, Mich.
Rehabilitation Institute of Chicago, 401 E. Ohio St., Chicago, Ill.
Research Council for Economic Security, 111 W. Jackson Blvd., Chicago 4, Ill.
Rochester Rehabilitation Center, 233 Alexander St., Rochester, N.Y.
Saranac Lake Rehabilitation Guild, 5 Franklin Ave., Saranac Lake, N.Y.
Selective Service System, National Headquarters, Washington, D.C.
Shut-In Society, 221 Lexington Ave., New York 16, N.Y.
Sieberling Health Center, Akron, Ohio.
St. Paul Rehabilitation Center, 319 Eagle St., St. Paul 2, Minn.
Springfield Rehabilitation Center, 1400 State St., Springfield, Mass.
Tuskegee Rehabilitation Center, John A. Andrew Memorial Hospital, Tuskegee, Ala.
United Cerebral Palsy Association, 50 West 57th St., New York 19, N.Y.
United Foundation, 90 N. Prospect St., Akron 4, Ohio.
United Mine Workers of America, Welfare and Retirement Fund, 907 15th St., N.W., Washington, D.C.
Chronic Disease Research Institute, University of Buffalo, Department of Physical Medicine, Buffalo, N.Y.
Veterans of Foreign Wars of the U.S., Broadway and 34th St., Kansas City 11. Mo.
Visiting Nurse Association of New York, 107 E. 70th St., New York, N.Y.
Volunteers of America, 340 W. 85th St., New York 24, N.Y.
We, The Handicapped, 15327 San Juan Dr., Detroit 38, Mich.
Western Society for Physical Rehabilitation, 900 W. 27th Ave., Vancouver, British Columbia, Canada.
Wisconsin Neurological Foundation, 1 W. Main St., Madison 3, Wisc.
Woodrow Wilson Rehabilitation Center, Fisherville, Va.

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